









Journal
of the
Royal Naval Medical Service.





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Editorial

It is customary in the January number of this Journal to make a brief survey of events of the year which has just departed.

On this occasion our first duty is to bid farewell to our Royal Navy, and to welcome his entrance in the office of Medical Director General at Whitehall.

Adjustments in the medical life in most respects the experience have occurred many of our readers to the Mediterranean Sea, and it looks as if the Medical Officers in the Far East are finding abundance of material to occupy their attention. The programme of expansion in the personnel of the Fleet has filled up the depot and training establishments with young men and boys, and the activities of the medical staffs have increased accordingly. The volume of work at the Home Hospitals has also expanded, and those who are responsible for the public health and hygiene of the Service have had problems of their own to solve. All this work keeps pace with the needs and makes for an increase in the sum total of medical experience.

It is therefore gratifying to find that medical officers and especially the junior ones are using their increased opportunities to record their experiences on paper for publication in this Journal. It is a genuine pleasure to reproduce a few of them in this present number. Apart from their purely medical reports they show valuable insights on current history.

We draw in these medical officers, and especially those engaged in hospital practice, for the clinical notes they have supplied throughout the year. These notes are a valuable feature of the Journal and we refer to the problems and many other matters that obtain in our hospital practice through the year.

Our acknowledgments are willingly extended to the excellent band of reviewers who have been kept busy throughout the year with a large volume of recently published medical literature.

James H. Hargrave, M.D., and J. H. Hargrave, M.D., in collaboration, and also a few others, have been publishing the *Journal of the American Medical Association* (formerly the *Journal of the American Medical Association*) with almost no apparent loss of its importance.

The *Journal*, since its first issue, has been published weekly, and its circulation has been steadily increasing. It is published by the American Medical Association, and its circulation is about 100,000 copies per month.

Finally, it is to be noted that the majority of these journals which have permitted reprinting on our paper articles and matter which have appeared in the *Journal of the American Medical Association*.

Original Article.

SERVICES RENDERED BY THE AMERICAN MEDICAL ASSOCIATION

BY JAMES H. HARGRAVE, M.D., AND J. H. HARGRAVE, M.D.

The publication of a summary of the services rendered by the American Medical Association to the Army or Navy is a reflection of the confidence in a point much more than others in the general population of this country is possible by the adoption of simple and relatively inexpensive measures. The disease of the Army or Navy is almost entirely disappearing as an administrative problem of the Army or Navy, and the importance of the services rendered by the American Medical Association to the Army or Navy is almost entirely disappearing.

Confidence in the service, contrary to the view occasionally expressed, is not such as to favor the maintenance of good health and of anything to discourage the development of the disease or prevent healthy subjects. Medical efforts are limited with the marked improvement in the health of the Army or Navy, and the marked improvement in the health of the Army or Navy is almost entirely disappearing. The American Medical Association has been able to pay the United States the cost of the disease of the Army or Navy. Many of these men, undernourished and generally below the ordinary standards of the Army or Navy, are prolonged in the service, and are almost beyond imagination—a gain in weight of as much as 100 lb. being by no means uncommon—during the two or three months of their training.

The principal problem in connection with phthisis, as far as the service is concerned, appears to be (1) detection of the disease in recruits; (2) its detection amongst those already in the service; (3) the treatment of the latter.

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and hence greater (negative) economic growth are present, it seems that the same effect is observed, despite the fact that the nature of growth, as indicated by the characteristics of the economy, the structure of the export of the South African economy, has a completely different dependency profile, where the main export is a primary product (gold) and the main import is a manufactured good (oil). In the generalised theory, the main import is a manufactured good, and the main export is a manufactured good, and the main import is a manufactured good.

the danger of tuberculosis. Moreover, the potential danger of which it is guilty is larger and the response is considered as not adapted.

Illustration of postoperative results in case of patient in case No. 104.

The original roentgen picture of the thorax, worthy of special mention, had the same features that were characteristic of the disease, but had not reached the stage of the disease.

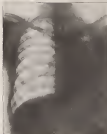


Fig. 1. Complete removal of the right lung. The patient is shown in the postoperative position. The patient is shown in the postoperative position. The patient is shown in the postoperative position. The patient is shown in the postoperative position.

A specimen whose size is 10 cm. in the coronal section was submitted to a histological examination in 1931 having been distinguished from the mass following from pathological examination. The left lung was found on the examination the right side. It was completely disappeared by a very narrow, thin membrane, from 1 mm. deep. A very previously white pleural, football—cystic, of the epiglottic tissue—he had brought up some blood stained sputum. After a time was made of this or some probably it was not reported. From a he remained in duty until the

records for a short time (approximately December—January), due to the grave medical departmental changes in the Government, were brought at a medical inspection, although such a post mortem investigation of the records. The radiological appearances of his chest mass, viz., that changes strongly suggest that he had suffered from the disease for a very long time—indeed, it seems highly probable, for the sake of his service interest. He himself states that a fellow cigarette smoker used the same telephone for three months had a very bad cough and was troubled out with pulmonary tuberculosis. He thinks that he received his infection from the second man but the second is almost certainly the case in view of the previous history of haemoptysis and of the radiological appearances of chest cavity.

It cannot be too strongly urged that communicable bacteria, pyogenic processes, cough and the occurrence of abnormal expectorations—whether singly or collectively—are phenomena, the presence of which calls for the most thorough investigation both clinical and radiological. Consequently cases which report such should only be treated under the most exceptional circumstances.

It must be remembered that a patient with even advanced phthisis may at first sight be apparently in good health and that at times cough may be so slight and the sputum—especially if small in amount, may be swallowed. Hence it is of vital importance when a case is detected that all other members of the same mass should be examined—not only clinically but also radiologically. It may happen that the detection of a case may coincide with the dispersion of the mass contacted. It is realized that under such circumstances it may hardly be possible to trace and investigate all the contact cases accurately, but in actual practice this would probably be a rare occurrence.

The Tuberculosis Medical Officer for Newcastle upon Tyne in his annual report for 1916 records that during that year out of 417 contacts—all of whom were examined radiologically in his Department—68 were found to be definitely suffering from pulmonary tuberculosis. The importance of these examinations of contacts when cases of pulmonary tuberculosis have been detected is now widely realized but it may be advisable to recall here some of the arguments in favour of the practice. Sir Arthur MacFadyen, now Chief Medical Officer to the Ministry of Health in his report on Tuberculosis published by His Majesty's Stationery Office in 1919, states that "every year nearly 4,000 cases of tuberculosis are detected in England as the result of routine examinations; i.e. between 7 and 8 percent of the total number of cases diagnosed by the Department were in during the year. The importance of getting hold of such cases before the disease is too advanced is so great that in any case it would be well worth while examining all contacts as a routine measure. This coincidence with cases of detected tuberculosis gives a plausible pretext for examining them, whereas there is no such excuse for examining every individual of the general population.

It must further be remembered that the cause for removal, namely, war, the only object of military commitment. Another primary objective aspect of such commitment is to find out, if possible, the cause of adjustment in the household. It happens not infrequently that after a number of family who return to the frequency for common cause and if circumstances indicate, loss is not the primary cause of adjustment but a serious symptom of other relatives who is still living and demonstrating, though in health in the home. Then this primary cause may never have been ascertained, and as often as complete ignorance that he or she is suffering from postwar adjustment. The discovery of such a case may be even more valuable than the discovery of an early secondary case, since it enables one to be able to control the continuance of the infection and to protect itself who would be most exposed to it.

It is to be hoped that with the volume of the contact examinations will be more than jobs and ultimately them, by all individuals affected in the future. It is the best method of diagnosis, the prompt and early case of individuals, the case which requires most favorably to maintain its treatment.

The value and generality of such contact examinations cannot be overestimated. Every argument in favor of its employment in dealing with the war population is equally potent in advocating its application in the Service.

Initiation of Cases Derived from Postwar Treatment

The experience of the Service has historicly protected the previous of facilities for the treatment of cases of this disease among warships as personnel.

In my opinion, if these cases were treated within the Service on the lines to be indicated, many of them would recover and given suitable deferred duties and arrangements for observation would return to active useful work without loss either of working hours or of infecting others.

The existing naval hospitals would lend themselves readily for the purpose of such treatment. The accommodations being adequate the necessary segregation required for these cases could easily be arranged. The well equipped x-ray departments are ideal for the diagnosis and the control of the progress of the disease. The psychological effort on these patients of being retained and treated within the Service, instead of being put on the "bench" without much hope for the future, would be beneficial and go a long way towards increasing the development of that factor which with the outlook, as necessary for recovery, is so difficult to obtain.

The modern operating theaters in these hospitals could also be converted for the employment of the various forms of collapse therapy now available—artificial pneumothorax, paracentesis and thoracentesis, for the more serious of these measures the necessary services of a thoracic surgeon could facilities be arranged, especially if the work was continued in a conveniently situated hospital.

CONCLUSION.

Dissemination of films of patients who are encountered in connection with pulmonary tuberculosis, and down the country are such as to fill anyone concerned with the subject with considerable concern. Moreover, here in connection with the war, the problem. The Naval Medical Service is highly organized, and they could be employed probably with greater efficiency of service than in connection with any other organization. Their employment would of course entail expense, but that would be money well spent as the disease would very rapidly—probably within five years—be eliminated almost completely from the Service, hence a great deal of the expenditure would be of a temporary nature, although it would be necessary to continue a regular service in order to prevent the introduction of further infection.

My thanks are due to Dr. Robert Cunningham, Medical Superintendent of Wesley Foundation in Northwoodstock, for supplying me with the clinical details and x-ray pictures used to illustrate points raised in this paper. It is of interest to note that in this connection, which draws its clinical material from a district whence tubercle has now gone the Navy, we were able to pick at random two cases which had been discharged from the Service with phthisis.

PULMONARY TUBERCULOSIS IN THE NAVY.

By VERNON DUNCAN, F. R. C. R., M. B., F. M. S. S.

Methods of diagnosis of pulmonary tuberculosis have markedly progressed during the last fifteen years, yet we in the Navy have largely to rely on inadequate and inaccurate methods in our endeavours to prevent the introduction of tuberculosis amongst recruits. In civil practice in England, and in civil and military practice on the Continent, much progress has been made; we are behind the times in this. That this is not an over statement I hope to show from the following extracts from the literature on the subject.

In 1901 Stresemann (1), one of the greatest German phthisiologists, laid down the following principles:—

- (1) It is imperative to pronounce a lung normal without an x-ray examination.
- (2) It is imperative to send an x-ray examination of a chest when there is any suspicion of tuberculosis.
- (3) It is imperative not to x-ray the chest of a case in which signs and symptoms of disease of the respiratory system last for more than three weeks. (But even in cases of shorter duration tuberculosis may be the cause, and can only be diagnosed by x-ray.)
- (4) It is imperative not to examine patients by x-ray who have not had

a certain extent, given the wide range covered. Some (30 per cent) may be completely asymptomatic; the others, by definition, limited to sweating.

Now about the obviously asymptomatic: those who, in jobs and leisure, showed no spontaneous symptoms, and perhaps none defined at the office? On looking through the literature we find that information diagnosed by physical signs and symptoms alone is not always found when a very examination is employed. In fact about 70 per cent of diagnoses are found to be incorrect.

At the British Medical Association Meeting in Glasgow in 1961, I. Ben gave several large series of cases from his own experience at the district and tuberculosis dispensaries in London. In all these cases, especially labelled as pulmonary tuberculosis, between 30 and 60 per cent were found to be non-tuberculous [14]. The London County Council Health Report for 1961 records that of 116 cases sent to two London Hospitals for diagnosis of the chest for expert opinion where a diagnosis of pulmonary tuberculosis had been made, 75 per cent were found not to be suffering from the disease at all. In Germany Hoffman surveyed 450 cases who had been diagnosed as tuberculoses by their own doctors and could only verify 17 per cent when he used an x-ray investigation with the ordinary methods. In another 450 cases who had been labelled as apical tuberculosis he could only find evidence of this disease in 37 per cent [15].

Two German specialists in two German towns each took a group of 100 insurance cases who had been diagnosed as apical tuberculosis by various general practitioners. The following table shows their results:—

	No. of cases seen	1 year later	No. correct diagnosis	No. of cases correctly diagnosed	No. of cases not correctly diagnosed	No. of cases not correctly diagnosed	No. of cases not correctly diagnosed
Berlin	100	14	1	1	99	99	99
Munich	100	30	10	10	90	90	90
Total	200	44	11	11	189	189	189

In other words 74 per cent showed no evidence of tuberculosis at the lungs, and only 75 per cent of the original diagnoses of apical tuberculosis were correct [16].

The Allgemeine Krankenhaus Berlin, which had repeatedly been free pointed out in the WHO Report, that out of 1461 cases diagnosed as pulmonary tuberculosis by general practitioners, 57 per cent showed no evidence of the disease. On the other hand out of 516 people diagnosed as suffering from other diseases of the chest, 54 per cent were proved to have pneumonia when x-ray examination was employed.

It is evident, therefore, that no accurate estimation of the condition of the lungs or health or disease can be made without the use of x-rays.

Here you may ask about those very few cases which do not show any x-ray evidence of disease when physical signs are present. For the reply is that in neither position. Where are just physical signs when you

days, and in some cases, even a few weeks, but in most cases, have been relieved by direct or indirect treatment of the coronary arteries. While it was long.

The total random mortality rate for the United States, as shown above, currently is in the neighborhood of 2 per 100,000 per year for males. This figure is based on the usual methods of diagnosis—including a very extensive use of pulmonary cases, all of which are included.

What would the picture be if all the cases in the United States were reported? If one only goes the wrong way of one step, a number of deaths, right cases of pulmonary disease, were found with the aid of a very, or one year. The gross mortality rate of 10 per 1000—over five times the reported rate. The total incidence of the disease probably is somewhere between these two extremes and will only be shown by the use of modern methods of diagnosis.

The following history of cases met with in the various states the need for an improved means of diagnosis of pulmonary tuberculosis.

Case 1.—A. Subacute tuberculosis, which is a very form of the disease, is the best known example with a case of phthisis. The left pulmonary vessel had never been all in the left, nothing more than chronic disease. There was no physical signs in the chest. The x-ray film showed an early tuberculous lesion in the left upper zone, which was later proved to be active.

Case 2.—The patient was examined during a routine examination of subjects of a case of pulmonary tuberculosis in 1945. He had a history of phthisis in 1937 and hospitalization in 1940 from which he took some time in recovering. He was found to be physically fit with no signs and no symptoms. Two months later he was treated with all the lung and a shadow was seen, extending from the apex to the bottom in the right side. An x-ray film contained that. He was suffering from a heavy cold at this time and only a few more cases were found in the chest. There was nothing in upper phthisis.

Case 3.—This case had been diagnosed as pulmonary tuberculosis in 1930 and sent to a Naval Hospital. He was discharged from there diagnosed as tuberculous. At the end of 1930 he began to complain of weakness in the chest. He was a well known by a specialist in tuberculosis, the chest, these results. Physical examination was negative and the first x-ray film showed an early tuberculous process in the right upper zone.

Case 4.—During a routine examination of tuberculosis patients, when a medical history was taken, a Chief Petty Officer mentioned, after short questioning, that he had a slight trouble with a "cold" several of years. He had had it for about one year and thought it was due to smoking. He had no other symptoms. A careful chest examination was done by two medical officers independently and no evidence of disease was found. An x-ray film showed a moderately advanced tuberculous process of the left side with a small cavity.

Case 5.—A. Pharyngeal spot up a small quantity of blood. He had no other symptoms and there were no physical signs. He had had a medical chest examination about one month previously. A tap examination showed an early tuberculous infiltration in both apices.

These cases emphasize the following points:

- (1) Low rate of right cases of pulmonary tuberculosis were without

of patients were seen after the diagnosis had been made by pulmonary biopsy. It is not possible to make the up-to-date study. The main problem was of course to have been diagnosed without using biopsy, and this is the only slightest suggestion of diagnosis in other

(4) History taking is comparatively routine. Its symptoms were complained of in two cases. Even in cases which have symptoms suggestive of phthisis, there may be considered for a considerable time until either they become so troublesome that relief is sought or the clinical syndrome is marked that the disease cannot be hidden. Many of the men who were reported as contacts have been greatly relieved, after worrying about some small and/or temporary symptoms, to find that their chests were clear.

(5) There was a history of contact with an open case of pulmonary tuberculosis in seven of the eight cases. The eighth had suffered from phthisis about seven years previously. But, in spite of this none of these men were given more than cursory chest examination after their exposure and a survey of the ship's company was made in 1946. The contacts on this ship will be transferred to other ships and there is no means of seeing that they are watched over more carefully than the average man.

(6) None of the cases quoted above had a tuberculous appearance. There was no marked loss of weight, or fast case it was getting. When the loss is only a few pounds it is impossible to state whether it is due to disease or disease. The men's quality of the ship's company had weight during the last summer months. Modern glycerolysis are in agreement that loss of weight is not reliable evidence of disease in the early stages.

Furthermore, all these men had led active lives other than reported by their doctors and did not complain of fatigue.

(7) The x-ray examination left no doubt but that the disease was tuberculous and activity was proved histologically. The lesion in Case 2 was clear and definite under the microscope, even though it was not observed.

(8) These medical officers took part in the examination of these cases and their contacts.

The writer examined 1000-1000 which had been declared normal by the others and even after diagnosis had been made, reached the same conclusion as they had done. In this case appears unlikely that the failure to diagnose these cases by physical signs was due to any personal factor or lack of care or examination.

It would seem from the literature on the subject and from actual practice even though the latter is small that it is impossible to diagnose early pulmonary tuberculosis without the use of a ray. Secondly it shows that the x-ray is an indispensable agent in the diagnosis of these cases.

5. CONCLUSIONS (see Table IV)

In 1946 there were 101 men revealed from the Army with pulmonary tuberculosis (22). This is roughly speaking an incidence of 1 in 100

concluded. Thus the most practical application in the light of 1940-1941, I believe, is to have not experimental methods of diagnosis and control with the future. We are open to the suggestion that we facilitate the support of tuberculous health among other men and under any hope of permanent living made by the consumption of man and child.

What more can we do to lower the rate for phthisis? How can these cases be diagnosed earlier and prevent the transmission of others? The following suggestions are made in an attempt to answer these questions:—

(1) Each department barracks could be equipped with a screening plant attached to the 15-ling Room or the back Bay. Cases which were observed after screening to require a film, could be sent to the Naval Hospital.

(2) The screening room would consist of the new screen boys or young adults. When they left a special film could be attached to their Medical History, showing with the results of the examination on it.

They would eliminate all those latent cases of pulmonary tuberculosis which break down or later were under screen (tuberculous or ill-health).

(3) Ideally each man should be screened at yearly intervals, but this is perhaps too much to ask for at least. Nevertheless a regular screen every three or four years should be made at least every three years, or when he returns, or he has been diagnosed about that time. The result of each examination would be entered on his special form, so that it was given to him, that is, to him.

(4) Particularly, some greater effort must be made to deal with men who have been reported to cases of tuberculosis. No better than a "screening" without a "follow-up" is worth while doing. But are these really screenings or more? They should be managed and screened every six months for at least two years.

I keep this in view as a result of a Naval or other hospital at least once a year, so it is not an unreasonable request.

And also we to still maintain? Besides the members of the same crew, we must consider those with whom he worked and played. They may be as far more danger than his immediate.

A number of check up should be made on all cases of disease of the chest, skin or pharynx and account on matters of tuberculosis and cancer. The first thing is to know as a common knowledge of consumption and the others. It is much an early tuberculous process.

It is a bit of work which would only be valuable at the beginning of the period of constitution. A suitable screening plant can be obtained in the ordinary phthisis for \$100. The greatest level screen complete equipment of a room are the only other requisites. No extra equipment could be used on the hospital, as for extra film, would be required.

For the sake of this low cost the Navy continues to pay persons to manage them, when they get no return. In fact, the men were given disability

problem (12) is given by setting up the corresponding eigenvalue problem for the dynamic equations for the compressible beam (Fig. 3)(3) and ω is given by the same characteristic equation as compressible beam (10) for ω .

Deflection (10) and (11) are obtained by substituting (12) into (9a). Inasmuch as (10) is considered a reliable one for analysis, (11) is also considered to be the same with just a change in ω due to the change in ω . It should point out that to a considerable extent (10) is identical to the theory at least in the diagnosis of explosion, and certainly, in any case, for the first and second loss.

We possess a reliable means of concentration which is comparatively inexpensive and accurate—why not use it more often? (1)

The Soviet Army instructors have been convincing their students for ten years and continue to do so because they find that it pays them better than to look to the old ways (2). In Germany we were to look to all group examinations of the working population. They also find it is cheap, accurate, and comparatively rapid (3). In the United States and Canada many of the large universities use a relatively intelligent examination of all new students, and doubtful cases (4) kept at them during the time they are studying there.

Others of this school may say, "How if you possess a machine you must have someone who is capable of using it properly. Certainly it would need a man who has some experience in their work, or be able to recognize a suspicious student when one was present. The knowledge necessary for this screening could be gained at a hospital for doctors of the chest. I agree with that instinct inasmuch as skill and experience and the results would be bound to be excellent."

CONCLUSIONS

(1) It is proved by experience during the last fifteen years that a large proportion of tuberculosis lesions of the chest escape diagnosis by the usual physical methods. It is not compatible with modern conscientiousness to continue blindly to place one's confidence in them.

(2) It follows that the employment of a few screening plants is necessary. There are no expense compared to the amount paid out annually for disability payments.

I wish to acknowledge the assistance given me by Dr. Hans Zaunmayer, M.D. (M.B.C.), of Alexandria, who helped me in the translation of references and who accepted over sixty more expanding much time and trouble.

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CAN AN EXTENDED EMPLOYMENT OF RADIOLOGY BE USED TO REDUCE THE INCIDENCE OF TUBERCULOSIS IN THE NAVY?

It is now established that x-ray examination of the chest will reveal many cases of unsuspected involvement of the lungs long before the disease shows clinical signs and symptoms and before tubercle bacilli can be found in the sputum. It has also been proved by modern radiographic methods that some subjects who have tubercle bacilli in their sputum may remain apparently healthy and continue to work for months or years before they realize that they are ill. The exposure of many susceptible Naval medical officers confirms the fact that many, perhaps, the majority of Naval cases of open tuberculosis will reveal on a very reliable sign on clinical examination, where x-ray examination shows extensive involvement of the lungs.

The time is ripe, therefore, to consider the possibility of reducing the high incidence of tuberculosis in the Navy by more extensive use of x-ray examination.

TABLE I

(a) THE TUBERCULOSIS PROBLEM IN THE ROYAL NAVY

As an introduction to the subject of *chest examination* by x-ray, which is agreed to decrease the numerous "concealed" sources of tubercular infection which are believed to exist in the Royal Navy, it is proposed to outline the incidence of "non-pulmonary tubercular disease." Table I gives the number and rate per 1,000 of the total strength of the Navy (existing 7,000) at Headquarters of cases, morbidity and deaths recorded in the statistical reports on the health of the Navy for the fourteen years, 1920-1934 (the last annual year before the War). Table II gives the more data from 1931 (the first year available after the record was interrupted by the War) to 1934. This is also a fourteen year period. Both tables include non-pulmonary as well as pulmonary tuberculosis. However, until recently it was easier to classify the data for all kinds of tuberculosis infection than for phthisis only, and because it appears more logical to exclude all forms of tuberculosis when it is probable that most of the non-pulmonary infections were contracted from open cases of pulmonary

Table 1. *Intermarriage in the Army by Race and Ethnicity, 1900-1964*

Year	Counts of			Rate per 100		
	White- born	Potential White- born	White- born in Army	White	Black	Other
1900	100	100	0	0.0	0.0	0.0
1904	100	100	0	0.0	0.0	0.0
1908	100	100	0	0.0	0.0	0.0
1912	100	100	0	0.0	0.0	0.0
1916	100	100	0	0.0	0.0	0.0
1920	100	100	0	0.0	0.0	0.0
1924	100	100	0	0.0	0.0	0.0
1928	100	100	0	0.0	0.0	0.0
1932	100	100	0	0.0	0.0	0.0
1936	100	100	0	0.0	0.0	0.0
1940	100	100	0	0.0	0.0	0.0
1944	100	100	0	0.0	0.0	0.0
1948	100	100	0	0.0	0.0	0.0
1952	100	100	0	0.0	0.0	0.0
1956	100	100	0	0.0	0.0	0.0
1960	100	100	0	0.0	0.0	0.0
1964	100	100	0	0.0	0.0	0.0
1900-1964	100	100	0	0.0	0.0	0.0

Note. — The apparent zero values in the black figures will have been inflated to 100 each.

Table 2. *Intermarriage in the Army by Race and Ethnicity, 1900-1964*

Year	Counts of			Rate per 100		
	White- born	Potential White- born	White- born in Army	White	Black	Other
1900	100	100	0	0.0	0.0	0.0
1904	100	100	0	0.0	0.0	0.0
1908	100	100	0	0.0	0.0	0.0
1912	100	100	0	0.0	0.0	0.0
1916	100	100	0	0.0	0.0	0.0
1920	100	100	0	0.0	0.0	0.0
1924	100	100	0	0.0	0.0	0.0
1928	100	100	0	0.0	0.0	0.0
1932	100	100	0	0.0	0.0	0.0
1936	100	100	0	0.0	0.0	0.0
1940	100	100	0	0.0	0.0	0.0
1944	100	100	0	0.0	0.0	0.0
1948	100	100	0	0.0	0.0	0.0
1952	100	100	0	0.0	0.0	0.0
1956	100	100	0	0.0	0.0	0.0
1960	100	100	0	0.0	0.0	0.0
1964	100	100	0	0.0	0.0	0.0
1900-1964	100	100	0	0.0	0.0	0.0

Note. — The apparent zero values in the black figures will have been inflated to 100 each.

Intermarriage. Only about 10 per cent of Naval intermarriage was non-palutary. For example (excluding Marriages by foreign-born), during the ten years 1900-1909, there were only 10, or 0.6 per cent, non-palutary marriages among a total of 1,600 cases of intermarriage.

This first preponderance of pulmonary tuberculosis makes it possible to use the available data on the former population (1875-1) the relative amount of phthisis in the 2 rep during the periods concerned.

Fig. 1 gives a graph of the case rate and death rate per 1,000 per annum as recorded in the official returns since 1880. The incidence of "other causes" as entered in the Statistical Abstract from 1880-1899 is recorded more as an example of the caution which has to be exercised in interpreting old records of statistics, than with the idea that it tells us anything about Royal tubercle during this decade. The recorded incidence of tuberculosis in the "statutes" was relatively low. These early figures are spurious, however, because before 1900 the diagnosis and recording of tuberculosis were carried out under instructions and conventions different from those



FIG. 1.—Pattern made on Day of Long Publishing Station in November

which has been in force since that year. From 1900 many diseases of the lung which were admitted to tuberculosis including cases which were (1880) diagnosed as "phthisis," were not entered under "tuberculosis" but grouped in a heterogeneous group called "other diseases of the respiratory system."

At the beginning of this century up till 1900 the case rates were so high as some cases were entered twice, once as a Foreign tubercle and again as a tubercle from. In fact until 1900 the rate was more an indication to hospital rates than a true infection rate. In 1900 measures were taken to correct this error and the case rates since that date are reliable and comparable. The recorded rate of 1 per 1,000 had dropped to 1 per 1,000 in 1910, the first normal year before the Great War. That there was a rise and drop in the prevalence of tuberculosis at one time is also suggested by the parallel fall in the mortality per 1,000 men, moving as given in the bottom line in fig. 1. The No. of tuberculosis mortality however is not a reliable index of the prevalence of the disease. At the 1910, of the high mortality from 1902 onwards the machinery for placing

men in mansions or hospitals outside the Navy, a "dead very death" and many men died in a Naval hospital before or after being "evacuated" out of the Service.

To-day, many such cases would have been placed in civilian institutions and would have died outside the Service. The fall in the death-rate which still continues is chiefly due to a great speeding-up in the process of getting cases of tuberculosis, as soon as possible after their discovery, into civilian homes, and perhaps partly to the earlier discovery of cases.

The most accurate index of the relative prevalence of tuberculosis in the Navy from year to year is the prevailing rate. Although some cases of non-pulmonary tubercle are noted and recorded in the Service all definite cases of pulmonary tuberculosis have to be recorded. The "evacuated" include cases, but not all—because of a patient's wish to travel or cannot be immediately placed in civilian institutions, he may die after he has been evacuated but before he has been discharged from a Naval hospital. He then becomes recorded as a "Naval death" as well as a "Naval evacuated."

The rates for Naval deaths and ratings who were finally evacuated out of the Service since 1890 are graphed in fig. 2. This graph confirms the

Table 2.—The recorded rate of the Service



Fig. 2.—Tuberculosis (all forms) in the Royal Navy, prevailing Marine or Headquarters

impression that there was some fall in the prevalence of tuberculosis between 1890 and 1910, but there is no further decline in the recorded incidence since that year. The ascending graph runs steeply in the years 1920 and 1930. The reason for this is obscure, but probably it was due to a transition period between the old and new methods of computing the rate, as will be referred to above. If there was a genuine decline in tuberculosis markedly before the Great War it is hard to understand, as, apart from, in the treatment efforts which were being made to improve the diet and environmental hygiene of the sailor.

The recorded prevailing rate for tuberculosis for the last five normal years before the Great War, 1909-1914, was 1.3 per 1,000 per annum as compared with 4 for 1890-94 and 2.2 for 1920-24. Thus, on the average,

a. Naval rating spends about twenty years in the Navy; these figures (as is then more than 4 per cent. of all who enter the Navy and subsequently tuberculosis before they leave it. Moreover, there is also to be considered the unknown number of men who contract their infection in the Navy but do not develop recognizable symptoms of the disease till after their discharge.

The incidence of tuberculosis in the Navy has been more or less level since 1907 during which time the general death rate for tubercular diseases in England and Wales has been halved. According to the Registrar General's Statistical Review for 1935 (Part, p. 64) the mortality from tubercle in the age-group 20 is most comparable to the Naval population. But before in 1935 is about two-thirds of what it was in 1914. It would appear, therefore, that the beneficial influence which our retaining the numbers of tuberculous sailors are not as general as often in the Navy.

Although the continued efforts to prevent tuberculosis may have had an apparent effect on the reported incidence of the disease, yet it is possible that modern methods of diagnosis are discovering more cases to reveal the retarded incidence. It is more likely, however, that as the incidence of tuberculosis falls outside the Navy, especially in the lower age groups, the men outside in the Navy are becoming rarer and more susceptible to infection with tubercle bacilli. This increase in susceptibility is balanced by the improvements that are constantly being effected in the living conditions of the sailor. If this hypothesis is true no efforts to prevent tuberculosis have not been entirely in vain. Had they been more such the incidence of Naval tuberculosis might have been greater. Some support for this inference is received from the observation that hospital staff nursing tuberculosis cases appear to be more liable to develop phthisis to day than formerly, in spite of the great improvement that has taken place in the hygiene, ventilation, and disinfecting arrangements of hospitals. (See *Lancet* on 26th January 9, 1935, p. 51.)

(3) THE RELATIVE INCIDENCE OF PULMONARY TUBERCULOSIS IN OUR LANDING FORCES

In the period 1928-30 6000 men were recruited from the Army suffering from phthisis which corresponds to a death annual rate of 600 per 1,000 in the Royal Air Force in which the age-grouping and length of service are more comparable with the Royal Navy, 114 cases of phthisis, or 6.08 per 1,000, were recorded during the years 1928-30. In the same five years 103 women and empire coast ratings left the Navy with phthisis—a rate of 2.14 per 1,000 per annum. The Medical Officer of Health for Cardiff J. G. Wilson gives some reasons for believing that tuberculosis is more rare in the Mercantile Marine than among some of corresponding class and age within (Report on Public Health of Cardiff for 1934). Thus these reasons leave little doubt that the prolonged life between decks in ships is more liable to the development of pulmonary tuberculosis in susceptible individuals.

ON TUBERCULOSIS IN THE NAVY: I. TUBERCULOSIS OF THE TONSILS
 (P. 25) AND RATION THEREOF IN NAVAL

Perhaps the first evidence that the tonsils were foci of a more or less severe morbidity in the development of tuberculosis of the lungs, from the average conditions of life which arose from within the Navy itself.

The number and rate per 1,000 years, of cases of pulmonary tuberculosis among different classes of Naval officers and men for the decade 1895-1904 is given in Table III. Commercial officers have a rate

Table III.—Pulmonary Tuberculosis: Cases and Rates per 1,000 Years

Rank or Grade	No. Cases	Rate per 1,000 Years
Commercial Officers	49	1.0
Subordinate Officers	7	0.1
Warrant Officers	1	0.0
Naval Surgeons	111	0.1
Naval Pay	76	0.4
Naval Fleet Surgeons	190	1.1
Naval	171	1.1
U. S. Army Surgeons	40	1.0
Officers (Naval)	15	1.0
Warrant	11	1.1
Naval Surgeons	11	1.1
Physicians	1	1.1

Note.—These groups do not compare the total strength of the Navy.

of 1.0 which is less than half that of the ratings. It is difficult to attribute the relatively low incidence of officers, as compared with the lower deck, to anything else than their relatively better and more spacious living-conditions, and more especially to the fact that officers sleep isolated from the ship's company and each other in separate cabins. Officers occupying lower a more sheltered social class would be expected to show a higher incidence of disease than ratings when both classes were exposed to the same risk of infection; therefore, we are forced to the conclusion that the risk of infection on the lower deck is much greater than on the weakness or officers' cabins.

On the average, commercial officers are older than ratings, but as we shall see later, the relatively low incidence of tuberculosis in officers cannot be attributed to a delayed age distribution. The comparative immunity of subordinate officers (practically all midshipmen) whose mortality is only 0.1 per 1,000 in striking contrast, distinguished, at sea, sleep closely segregated in hammocks in just the same way as lower deck ratings. Few members of this group, however, have been more than a year or two at sea, and in general may not have had time to develop compensating phagocytes. This condition is borne out by the analogous low rate among hospital boys as compared with other classes. Boys are rarely more than a year or two at sea before being rated "Ordinary Seamen." It is

suggests that among Malahpans the incidence of pulmonary tuberculosis is roughly one third of that among Commonwealth Officers (3.4 compared with 1.3) and that they show only about a third (2.6 compared with 8.4) of the mortality of Seamen.

The majority of boys and Malahpans are under 20 years of age, and in general, people of this age only suffer about half the mortality of those in the age group 25-35.

Table III shows that the incidence of pulmonary tuberculosis is the same for Seamen and Royal Naval ratings (mainly Fishery). However, he suggested that Seaman ratings are prone to respiratory disease owing to their continually getting in and out from a hot snugly environment between decks to exposure to all kinds of weather on the upper deck. This argument is not applicable to Fishery who suffer as much as Seamen, or to other ratings such as Writers and Telegraphists, who spend most of their life between decks and present a somewhat higher mortality than Seamen or Fishery. Incidentally, contrary to general belief where, the main parts of the engine and boiler rooms of a big modern ship are about the most cool, spacious and well ventilated situations in the sea-going environment. The highest incidence (1.7 per 1,000) of Naval tuberculosis is seen in the Supply Branch, many of whom rarely appear on the upper deck. Supply ratings often spend much of their time in hot ill-ventilated quarters in the bowels of the ship and therefore other factors (overcrowding, constant use) would expect them to suffer from tubercle more frequently than the average.

Deck berth ratings and Officers (Executive, Administrative and Officers Cadets) have a slightly lower plethoric mortality than the rest of the lower deck. If this is not merely due to chance, which is possible, as there are small groups it may be significant that officers' servants spend a large part of their time in the more spacious officers' quarters, and Deck-berth ratings, although their occupation brings them more often into contact with equivalent rates of tubercle, have a day and night environment on the deck bay which is better than the average. In addition they spend about three-quarters of their service time in hospitals and other establishments. The higher rate in Messes is rather puzzling as they spend about a third of their time there.

Messes however lead a more congested community life than do the Deck-berth deck-berth ratings and about a quarter less often where. It should be noted that Tables I, II and III exclude increases in their Headquarters Hopes. This however, makes no appreciable difference, as the incidence of tuberculosis (all tubercles) is practically the same for Messes as for berths as for Messes about. For example, in the post-war period, 1935-45 the Messes, or just per 1,000 per annum, acquired tuberculosis while in barracks. In the post-war period 1931-45, the incidence was 1.91 or 2.11 per 1,000 Messes in barracks. Ratings spend about one year in three in barracks; it is not, therefore, surprising, considering the conditions under

I should take notice that there is no little difference in the mortality rate in and about. The relatively high incidence of *M. tuberculosis* compared to other soldiers who spend half their time under suggests, on right (a new) tubercular infection, in Marines are contracted while living in the new barracks of a shipboard is less intense of tubercular bacilli returning to barracks after a commission at sea. Finally Table III shows a picture, even of great significance in that the mortality of the *Warrent Officers* is about the same as that of the *Commissioned Officers*. The former, like the latter occupy their own offices and have better accommodation than the lower deck. *Warrent Officers*, however are all protected from the lower deck and although the ratings, not so protected, maintain a rather phlegmatic rate of over 2% per 1,000 (see Table VII) yet those provided to *Warrent* rank suffer less than half this mortality.

The evidence summarized in Table III is, very strong that the *Warrenting* factor in *Naval tuberculosis* is unimportant and that the risk of infection on the lower decks of a naval vessel is double that in the workhouse, and double that of the Army and the Air Force.

The relative freedom of *Naval* officers as compared with *Naval* ratings also makes it evident that it is not an going commitment on itself which predisposes to tuberculosis; but rather the dense aggregation of camp with on the main decks.

(1) DISEASES OF TUBERCULOSIS IN THE NAVY IN REP AND INCIDENCE OF SERVICE

In all analyses of this sort it is essential to make certain as far as possible that the differences in the incidences observed cannot be attributed to differences in the age composition in, what is perhaps more important in the various length of service (seniority) of the various groups under observation. For this reason the rather laborious work of compiling Tables IV to VII had to be undertaken—

Table IV. *INCIDENCE OF TUBERCULOSIS IN THE NAVY BY SENIORITY AND RATING.*

Years	Rating 1. Lower Deck				Total rate		Incidence per 1,000
	1-10	11-20	21-30	31-40	5-10	11-20	
1900-1901	20	30	40	10	20	1.12	1.1
1901-1902	15	25	35	10	20	1.05	1.0
1902-1903	20	30	40	10	20	1.05	1.0
1903-1904	15	25	35	10	20	1.05	1.0

Percentage of Total Cases

Years	1-10	11-20	21-30	31-40	5-10	11-20
1900-1901	15	25	35	10	20	1.12
1901-1902	15	25	35	10	20	1.05
1902-1903	15	25	35	10	20	1.05
1903-1904	15	25	35	10	20	1.05

14 *Case and Extended Employment of Employees in steel*

TABLE 7. *Employees, 1934-1935, by age group and sex*
Number of Employees

Age group	Sex				Total
	Male	Female	White	Colored	
14-17	250	220	71	149	470
18-24	220	220	100	120	440
25-34	220	220	100	120	440
35-44	220	220	100	120	440
45-54	220	220	100	120	440
55-64	220	220	100	120	440
65-74	220	220	100	120	440
75-84	220	220	100	120	440
85-94	220	220	100	120	440
95-104	220	220	100	120	440
105-114	220	220	100	120	440
115-124	220	220	100	120	440
125-134	220	220	100	120	440
135-144	220	220	100	120	440
145-154	220	220	100	120	440
155-164	220	220	100	120	440
165-174	220	220	100	120	440
175-184	220	220	100	120	440
185-194	220	220	100	120	440
195-204	220	220	100	120	440
205-214	220	220	100	120	440
215-224	220	220	100	120	440
225-234	220	220	100	120	440
235-244	220	220	100	120	440
245-254	220	220	100	120	440
255-264	220	220	100	120	440
265-274	220	220	100	120	440
275-284	220	220	100	120	440
285-294	220	220	100	120	440
295-304	220	220	100	120	440
305-314	220	220	100	120	440
315-324	220	220	100	120	440
325-334	220	220	100	120	440
335-344	220	220	100	120	440
345-354	220	220	100	120	440
355-364	220	220	100	120	440
365-374	220	220	100	120	440
375-384	220	220	100	120	440
385-394	220	220	100	120	440
395-404	220	220	100	120	440
405-414	220	220	100	120	440
415-424	220	220	100	120	440
425-434	220	220	100	120	440
435-444	220	220	100	120	440
445-454	220	220	100	120	440
455-464	220	220	100	120	440
465-474	220	220	100	120	440
475-484	220	220	100	120	440
485-494	220	220	100	120	440
495-504	220	220	100	120	440
505-514	220	220	100	120	440
515-524	220	220	100	120	440
525-534	220	220	100	120	440
535-544	220	220	100	120	440
545-554	220	220	100	120	440
555-564	220	220	100	120	440
565-574	220	220	100	120	440
575-584	220	220	100	120	440
585-594	220	220	100	120	440
595-604	220	220	100	120	440
605-614	220	220	100	120	440
615-624	220	220	100	120	440
625-634	220	220	100	120	440
635-644	220	220	100	120	440
645-654	220	220	100	120	440
655-664	220	220	100	120	440
665-674	220	220	100	120	440
675-684	220	220	100	120	440
685-694	220	220	100	120	440
695-704	220	220	100	120	440
705-714	220	220	100	120	440
715-724	220	220	100	120	440
725-734	220	220	100	120	440
735-744	220	220	100	120	440
745-754	220	220	100	120	440
755-764	220	220	100	120	440
765-774	220	220	100	120	440
775-784	220	220	100	120	440
785-794	220	220	100	120	440
795-804	220	220	100	120	440
805-814	220	220	100	120	440
815-824	220	220	100	120	440
825-834	220	220	100	120	440
835-844	220	220	100	120	440
845-854	220	220	100	120	440
855-864	220	220	100	120	440
865-874	220	220	100	120	440
875-884	220	220	100	120	440
885-894	220	220	100	120	440
895-904	220	220	100	120	440
905-914	220	220	100	120	440
915-924	220	220	100	120	440
925-934	220	220	100	120	440
935-944	220	220	100	120	440
945-954	220	220	100	120	440
955-964	220	220	100	120	440
965-974	220	220	100	120	440
975-984	220	220	100	120	440
985-994	220	220	100	120	440
995-1004	220	220	100	120	440
1005-1014	220	220	100	120	440
1015-1024	220	220	100	120	440
1025-1034	220	220	100	120	440
1035-1044	220	220	100	120	440
1045-1054	220	220	100	120	440
1055-1064	220	220	100	120	440
1065-1074	220	220	100	120	440
1075-1084	220	220	100	120	440
1085-1094	220	220	100	120	440
1095-1104	220	220	100	120	440
1105-1114	220	220	100	120	440
1115-1124	220	220	100	120	440
1125-1134	220	220	100	120	440
1135-1144	220	220	100	120	440
1145-1154	220	220	100	120	440
1155-1164	220	220	100	120	440
1165-1174	220	220	100	120	440
1175-1184	220	220	100	120	440
1185-1194	220	220	100	120	440
1195-1204	220	220	100	120	440
1205-1214	220	220	100	120	440
1215-1224	220	220	100	120	440
1225-1234	220	220	100	120	440
1235-1244	220	220	100	120	440
1245-1254	220	220	100	120	440
1255-1264	220	220	100	120	440
1265-1274	220	220	100	120	440
1275-1284	220	220	100	120	440
1285-1294	220	220	100	120	440
1295-1304	220	220	100	120	440
1305-1314	220	220	100	120	440
1315-1324	220	220	100	120	440
1325-1334	220	220	100	120	440
1335-1344	220	220	100	120	440
1345-1354	220	220	100	120	440
1355-1364	220	220	100	120	440
1365-1374	220	220	100	120	440
1375-1384	220	220	100	120	440
1385-1394	220	220	100	120	440
1395-1404	220	220	100	120	440
1405-1414	220	220	100	120	440
1415-1424	220	220	100	120	440
1425-1434	220	220	100	120	440
1435-1444	220	220	100	120	440
1445-1454	220	220	100	120	440
1455-1464	220	220	100	120	440
1465-1474	220	220	100	120	440
1475-1484	220	220	100	120	440
1485-1494	220	220	100	120	440
1495-1504	220	220	100	120	440
1505-1514	220	220	100	120	440
1515-1524	220	220	100	120	440
1525-1534	220	220	100	120	440
1535-1544	220	220	100	120	440
1545-1554	220	220	100	120	440
1555-1564	220	220	100	120	440
1565-1574	220	220	100	120	440
1575-1584	220	220	100	120	440
1585-1594	220	220	100	120	440
1595-1604	220	220	100	120	440
1605-1614	220	220	100	120	440
1615-1624	220	220	100	120	440
1625-1634	220	220	100	120	440
1635-1644	220	220	100	120	440
1645-1654	220	220	100	120	440
1655-1664	220	220	100	120	440
1665-1674	220	220	100	120	440
1675-1684	220	220	100	120	440
1685-1694	220	220	100	120	440
1695-1704	220	220	100	120	440
1705-1714	220	220	100	120	440
1715-1724	220	220	100	120	440
1725-1734	220	220	100	120	440
1735-1744	220	220	100	120	440
1745-1754	220	220	100	120	440
1755-1764	220	220	100	120	440
1765-1774	220	220	100	120	440
1775-1784	220	220	100	120	440
1785-1794	220	220	100	120	440
1795-1804	220	220	100	120	440
1805-1814	220	220	100	120	440
1815-1824	220	220	100	120	440
1825-1834	220	220	100	120	440
1835-1844	220	220	100	120	440
1845-1854	220	220	100	120	440
1855-1864	220	220	100	120	440
1865-1874	220	220	100	120	440
1875-1884	220	220	100	120	440
1885-1894	220	220	100	120	440
1895-1904	220	220	100	120	440
1905-1914	220	220	100	120	440
1915-1924	220	220	100	120	440
1925-1934	220	220	100	120	440
1935-1944	220	220	100	120	440
1945-1954	220	220	100	120	440
1955-1964	220	220	100	120	440
1965-1974	220	220	100	120	440
1975-1984	220	220	100	120	440
1985-1994	220	220	100	120	440
1995-2004	220	220	100	120	440
2005-2014	220	220	100	120	440
2015-2024	220	220	100	120	440
2025-2034	220	220	100	120	440
2035-2044	220	220	100	120	440
2045-2054	220	220	100	120	440
2055-2064					

TABLE IV—*Frequency of Tuberculosis in Officers and Enlisted Personnel, 1900-1904 and 1905-1914*

Age Group	Frequency	Frequency	Frequency
1-14	1	1	1
15-24	1	1	1
25-34	1	1	1
35-44	1	1	1
45-54	1	1	1
55-64	1	1	1
65-74	1	1	1
75-84	1	1	1
85-94	1	1	1
95-104	1	1	1
105-114	1	1	1
115-124	1	1	1
125-134	1	1	1
135-144	1	1	1
145-154	1	1	1
155-164	1	1	1
165-174	1	1	1
175-184	1	1	1
185-194	1	1	1
195-204	1	1	1
205-214	1	1	1
215-224	1	1	1
225-234	1	1	1
235-244	1	1	1
245-254	1	1	1
255-264	1	1	1
265-274	1	1	1
275-284	1	1	1
285-294	1	1	1
295-304	1	1	1
305-314	1	1	1
315-324	1	1	1
325-334	1	1	1
335-344	1	1	1
345-354	1	1	1
355-364	1	1	1
365-374	1	1	1
375-384	1	1	1
385-394	1	1	1
395-404	1	1	1
405-414	1	1	1
415-424	1	1	1
425-434	1	1	1
435-444	1	1	1
445-454	1	1	1
455-464	1	1	1
465-474	1	1	1
475-484	1	1	1
485-494	1	1	1
495-504	1	1	1
505-514	1	1	1
515-524	1	1	1
525-534	1	1	1
535-544	1	1	1
545-554	1	1	1
555-564	1	1	1
565-574	1	1	1
575-584	1	1	1
585-594	1	1	1
595-604	1	1	1
605-614	1	1	1
615-624	1	1	1
625-634	1	1	1
635-644	1	1	1
645-654	1	1	1
655-664	1	1	1
665-674	1	1	1
675-684	1	1	1
685-694	1	1	1
695-704	1	1	1
705-714	1	1	1
715-724	1	1	1
725-734	1	1	1
735-744	1	1	1
745-754	1	1	1
755-764	1	1	1
765-774	1	1	1
775-784	1	1	1
785-794	1	1	1
795-804	1	1	1
805-814	1	1	1
815-824	1	1	1
825-834	1	1	1
835-844	1	1	1
845-854	1	1	1
855-864	1	1	1
865-874	1	1	1
875-884	1	1	1
885-894	1	1	1
895-904	1	1	1
905-914	1	1	1
915-924	1	1	1
925-934	1	1	1
935-944	1	1	1
945-954	1	1	1
955-964	1	1	1
965-974	1	1	1
975-984	1	1	1
985-994	1	1	1
995-1004	1	1	1
1005-1014	1	1	1
1015-1024	1	1	1
1025-1034	1	1	1
1035-1044	1	1	1
1045-1054	1	1	1
1055-1064	1	1	1
1065-1074	1	1	1
1075-1084	1	1	1
1085-1094	1	1	1
1095-1104	1	1	1
1105-1114	1	1	1
1115-1124	1	1	1
1125-1134	1	1	1
1135-1144	1	1	1
1145-1154	1	1	1
1155-1164	1	1	1
1165-1174	1	1	1
1175-1184	1	1	1
1185-1194	1	1	1
1195-1204	1	1	1
1205-1214	1	1	1
1215-1224	1	1	1
1225-1234	1	1	1
1235-1244	1	1	1
1245-1254	1	1	1
1255-1264	1	1	1
1265-1274	1	1	1
1275-1284	1	1	1
1285-1294	1	1	1
1295-1304	1	1	1
1305-1314	1	1	1
1315-1324	1	1	1
1325-1334	1	1	1
1335-1344	1	1	1
1345-1354	1	1	1
1355-1364	1	1	1
1365-1374	1	1	1
1375-1384	1	1	1
1385-1394	1	1	1
1395-1404	1	1	1
1405-1414	1	1	1
1415-1424	1	1	1
1425-1434	1	1	1
1435-1444	1	1	1
1445-1454	1	1	1
1455-1464	1	1	1
1465-1474	1	1	1
1475-1484	1	1	1
1485-1494	1	1	1
1495-1504	1	1	1
1505-1514	1	1	1
1515-1524	1	1	1
1525-1534	1	1	1
1535-1544	1	1	1
1545-1554	1	1	1
1555-1564	1	1	1
1565-1574	1	1	1
1575-1584	1	1	1
1585-1594	1	1	1
1595-1604	1	1	1
1605-1614	1	1	1
1615-1624	1	1	1
1625-1634	1	1	1
1635-1644	1	1	1
1645-1654	1	1	1
1655-1664	1	1	1
1665-1674	1	1	1
1675-1684	1	1	1
1685-1694	1	1	1
1695-1704	1	1	1
1705-1714	1	1	1
1715-1724	1	1	1
1725-1734	1	1	1
1735-1744	1	1	1
1745-1754	1	1	1
1755-1764	1	1	1
1765-1774	1	1	1
1775-1784	1	1	1
1785-1794	1	1	1
1795-1804	1	1	1
1805-1814	1	1	1
1815-1824	1	1	1
1825-1834	1	1	1
1835-1844	1	1	1
1845-1854	1	1	1
1855-1864	1	1	1
1865-1874	1	1	1
1875-1884	1	1	1
1885-1894	1	1	1
1895-1904	1	1	1
1905-1914	1	1	1

Table IV gives in brief a pretty good idea since 1900 the numbers of those involved with tuberculosis according to the length of time they had served in the Navy. Before the numbers are inserted the percentage relationship between members of each severity group and the total available in the period. The only striking feature in this table is that while at the beginning of the century about half the cases of tuberculosis were diagnosed during the first two years of service, at the present time only 10 per cent are found so early in their service career. Using the only available age-groups for the same years as were used to compile Table IV, Table V shows the same change of distribution with age but not so distinctly as with severity.

The relation in the numbers and frequency of tuberculosis cases among the youngest and junior groups might suggest that tuberculosis was becoming more a disease of senior Naval ratings, in day than it was in the past. Such a conclusion, however, would be largely false as the change in the frequency distribution shown in Tables IV and V is almost entirely due to the change in the severity and age of the total force which has taken place since 1900. This is demonstrated in Table VI where the age-grouping of the total force is given for the periods 1900 to 1904 and 1905 to 1914, and the severity grouping for the latter period only. In the early period less than 20 per cent of the force were over 35 years of age and 25 per cent were under 25 years old. To day about 35 per cent of the Navy are over 35, and only 18 per cent are under 25 years of age. In the earlier period when the Service was composed of younger men, there was little difference in the numbers of tuberculosis in the under 25 and 25 to 35 age-groups. In the recent period, however, the youngest age group has rather significantly less than tuberculosis than the others including the age-group over 45. This last group however, consists almost entirely of officers which accounts for the low mortality of those over 45 years old in both periods. A new tubercular situation with officers may thus account for the lower rate of the relatively small age group 71-75, in the earlier period 1900-1904.

Table VI B shows that during recent years, as with age as with severity, the incidence of tuberculosis is definitely lower during the first two years

in final position and that is, no significant difference in the distribution of the (uncomplicated) two coronary groups. This is an important observation because, following this, over the first four years of service, the clinical and intervention records of almost half the total and with an age range about 17½ years and upwards, show a high, compared that age men who survived the risks of infection under the above conditions of a life at sea for fifteen or twenty years ought to be similar to others ashore, but, as a matter of fact, the risk of developing phthisis is greater after twenty years at sea than five years' service in the Navy. This conclusion was so important that it was checked for the seven-year period 1926-1934. From since the only years in which it was possible to use actual case rates instead of mortality rates and at the same time to exclude the effects and cases of non-pulmonary tuberculosis. Table VII summarizes the results of this comparison.

The incidence of pulmonary tuberculosis among lower deck ratings is 0.15 per 1,000 per annum during the first year of service, averages 1.5 for the next four years of service, and then remains practically steady at 2.0 per 1,000 per annum. These statistics make it almost impossible to attribute the relative freedom of the Naval observer and of the Army and Air Force rates, as compared with lower deck Naval ratings, to differences in the age and 'immune' composition of the three fighting services. The constant rate of infection, or better the constant rate of onset of clinical tuberculosis after five years' service is difficult to understand. For if Naval phthisis chiefly arises from infection with tubercle bacilli which are carried from the unobserved sources which are assumed to exist in the Navy, it is strange that there is no evidence of any 'weeding out' of susceptibility with the passage of time, i.e. that there is no fall in the morbidity of phthisis in the older and more senior ratings. Even on the old hypothesis, that tubercular infection in Europe is nearly always contracted in childhood and only becomes manifest when adverse conditions cause the organism infection to break down, one would expect if life in the lower deck of a warship is favourable to the development of tuberculosis, that the majority of cases of phthisis would reveal themselves within the first ten years of service, but as Table VII shows, this is far from being the case. However, as regards the age groups represented, the shape of the age-mortality curve of the morbidity of tuberculosis in the Navy corresponds closely with the curve of mortality in England and Wales as a whole, where the morbidity runs slightly between the ages of 15 and 25 and then remains more or less level till after 45, but falls rapidly about the age of 65.

There is strong evidence, however, that many cases of phthisis in the Navy are produced by direct infection from other cases. Small outbreaks of four to ten cases may occur in one ship. Such outbreaks may represent an actual morbidity of 1 to 4 per cent of a ship's company or an incidence five to twenty times the expected morbidity. However, with a frequency that seems too high to attribute to non-consciousness (two or three Waters at Telegraph Station working in the case after, or Brown sleeping

in adjacent households, and found no direct transmission. Spread is found from one child to another. One of the strongest pieces of evidence, coming partly reflecting in a constant series of random phages in which live in the high incidence of pulmonary tuberculosis among the working staff in hospitals, which some reports suggest may be three or four times that prevailing in the Navy (see *Lancet*, January 6, 1935, p. 191).

(5) CIVILIAN AND NAVAL TUBERCULOSIS MORBIDITY

It is hard to get any trustworthy data regarding the relative morbidity of phages among males whose at the same age social and economic standing is varied enough. In recent years the death rate for England and Wales as a whole for phages in the age group 25-45 is about 1.5 per 1,000. What rate then bears to the morbidity rate is unknown. According to the Report of the Ministry of Health for 1933 there were 71,117 primary notifications of respiratory tuberculosis, a rate of about 1.1 per 1,000, but the statistics in various places ages correspond to those in the Navy in such greater than the morbidity rate for the total British population, and presumably, the morbidity in this age group would also be proportionately greater. If so, a 5.5 case rate in the Navy may not be so very much in excess of the corresponding rate within the population where, however, includes cases from non-viral tuberculous 'disposition' (dietary and other factors and from areas where the standard of living is far lower than in the Royal Navy which is, moreover, a selected population that has been passed through the sieve of a stringent medical examination.

(6) THE RELATIVE INCIDENCE OF TUBERCULOSIS IN THE ROYAL NAVY

Whether the frequency of tuberculous disease is or is not greater in the Navy than among males of corresponding ages in the whole of England and Wales the fact remains that, for the naval ingenuity the control of tuberculous infection is perhaps the most important medical problem in contemporary medicine. Tuberculous disease causes more days sickness in the Navy than does tuberculosis but rarely leads at the present time to death, involving no permanent disability. As mentioned previously, at least 4 per cent of those who enter the Navy acquire phages before they leave it. After pulmonary tuberculosis with an incubating rate of 2.5, 'dissemination of the age' in the greatest cases of spreading with a rate of 1.8 per 1,000 per annum for the two years 1933-1934. Nervous and mental diseases come next with a rate of 1.1 per 1,000, followed by 'dissemination of the age' with 0.9 per 1,000 for the corresponding period. The great majority of these avoided for tuberculous cases however only suffer from cases of tuberculosis and, in civil life where they can wear glasses, they are not handicapped in the struggle for existence.

To what extent the same is true of the 'nervous condition' is kept

properties of whom have, usually, in other nations, had to gradually adapt themselves to the complex social environment. These "migrants" often retain good on transfer to a new life. Doubtless most of the war cases mentioned earlier have almost certainly ended in failure of a degree insufficient to prevent them securing a living where. But tuberculosis is curable if they do not die after a few months or years of illness, may cause for many years a heavy drain on the material and financial resources of the country.

The more conclusive of general evidence ignored, which the statistical review brings out, is that, in spite of the improvements that have been effected in the diet, hygiene and living conditions of the Navy, the recorded incidence of tuberculosis is in decline, although during the same period there has been a considerable fall in the corresponding morbidity when in England and Wales. The failure to reduce tuberculosis in the downy Navy environment is against the hypothesis suggested by Brewster and other authorities that the decline of tuberculosis where it has to some extent altered in the character of the tubercle bacillus, or in an increase in the specific immunity of the population to tuberculosis. The Naval experience suggests that "the average resistance and resistance of the present day strains of tubercle bacilli are the same as they were 50 years ago and that the English young men who in more susceptible nations than were common—thus formerly in ghettos. Hence, the rapid fall in the general prevalence of tuberculosis where men with some resistance be attributed mainly to the great improvements in the environmental hygiene and standards of living which have taken place in England and elsewhere during the last half century.

LEAST 11

ON THE FRANKLIN HYPOTHESIS OF NON-REPRODUCTION OF TUBERCLE BACILLI IN THE NAVY

The efforts to prevent tuberculosis in the Royal Navy have not been without success as judged by the recorded incidence of the disease (see fig. 2). The only rational method which offers much hope of success is based on the more extensive use of a ray examination. Before indicating how such a method might be applied, it must be realized that the limited nature of other methods in the past, the complexity of the factors which determine the transmission and distribution of respiratory infections in time and space, the current gaps in our knowledge of the epidemiology and pathology of the disease, and the administrative difficulties in organizing a scheme requiring thousands of men to be ray examined, make it impossible to guarantee that any scheme based on radiographic methods will succeed in reducing the real incidence of tuberculosis to any great extent.

The recorded incidence would of course rise temporarily, as men early cure were discovered.

The interpretation of the adapted facts of tuberculosis in soil, in navy

infection is only a self-contained tuberculous infection, and that persons are subject to a continuous stream of infection until the disease has been first and cured.

The grounds on which the case is made for the prevention of infection does centre in the fact that tuberculous lesions of the lungs are believed to arise by a reinfection by any other means. These cases of tuberculosis in the Navy are not cured and until they have tubercle bacilli in their sputum or until they have become "open cases." It is obvious that the removal of early cases from the Naval environment before they become "open cases" would reduce the number of sources of tuberculous infection, and the theory that this in turn would ultimately reduce the total incidence of tuberculosis in the Navy seems, therefore, reasonable. In putting it it should be noted that the earlier pulmonary tuberculosis is discovered and treated the greater is the patient's chance of the ultimate arrest of the disease, thus an extension of the use of a ray examination would at least benefit the individual officers, even should it fail to reduce the incidence of phthisis in the Navy as a whole. The assumption that the wholesale removal of early cases of phthisis from the Navy would ultimately reduce the incidence of tuberculosis rests on the hypothesis that the majority of Naval phthisis patients are infected by coming in contact with other cases of open tuberculosis of the lungs after leaving the Service. This is, however, by no means universally accepted. One school of thought prefers the alternative theory that in England and Wales most cases of phthisis are acquired in infancy or childhood but that the infection is rapidly arrested and positively remains arrested for life, unless some adverse circumstances cause the disease to re-progress later years.

Should this latter hypothesis be wholly true the most extensive use of a ray would have no effect on the mortality of pulmonary tuberculosis in the Navy. Nevertheless there is strong reason for favouring the former hypothesis (see pages 24 and 44, Part I), and for believing that the majority of Naval tuberculous patients are infected with tubercle bacilli during their Naval service. It is conceivable that both hypotheses are in part true, so which causes the value of using a ray for the early removal of potential sources of tuberculous infection would depend on how often phthisical cases were infected with tubercle bacilli after leaving the Navy as compared with the frequency with which cases of pulmonary tuberculosis develop in the Navy as the result of the building up of old infections which were arrested prior to entry.

PRINCIPAL USES OF THE RAY FOR THE DETECTION AND REMOVAL OF TUBERCULOUS LESIONS IN THE NAVAL SERVICE.

1. For preventing tuberculous contacts. 2. For detecting tuberculous lesions of the lungs. 3. For preventing transmission of the apparently healthy normal personnel of the Navy for the purpose of avoiding any unnecessary early cases of phthisis.

A. Remarks.—We will assume that the total strength of the Navy is 140,000 men, and that 1,000 recruits are required annually in order to maintain it at this strength. As a matter of fact the Navy is at present expanding rapidly and the rate of recruiting has been accelerated greatly.

Recent investigations (see B. B. Tinsl, *Trans. of Nat. Assoc. for Prev. of Tub.*, 1936, p. 89) suggest that about 1 per cent. of the working classes, who are apparently healthy at about the age of 15, are found to have tubercular lesions in their lungs if examined by x rays. About half these lesions are progressive and about half quiescent. Several recruits might be expected to show the same incidence. If so, among 1,000 recruits about 50 would be found on radiographic examination to be unfit for service. This would not seem to be too great a strain on the supply of recruits. It is as well to state at once that if x rays were used, both progressive and a greater mass of tuberculous might have to be expected. It is, as is commonly stated, agreed cases are liable to become active again under the conditions of naval service. Recent observations, however, show that there is ground for the belief that those cases which have become arrested in the early non-specific phase of the disease are less likely to develop clinical tuberculosis than are those subjects who have never been infected before.

The available evidence supports the opinion that the use of x-ray examinations for eliminating tubercular recruits is a practical proposition.

B. Examination of Contacts.—Mr Arthur MacNagly reports that, in 1935 out of 18,915 adults who were contacts to cases of tuberculosis, 9 per cent. were discovered to be suffering from pulmonary tuberculosis on examination by x rays. Incidentally, this is itself suggestive, not by its recent conclusive evidence that English adults are often infected with tubercle bacilli in adult life. Supposing the above percentage of tubercular contacts held good in the Navy, and supposing it was decided to examine all contacts to each recorded case of tuberculosis, then, since there are, under present conditions, about 100 cases of phthisis diagnosed annually with a scheme would require the x-ray examination of about 1,000 contacts, of which 9 per cent. or 90 might be expected to show a new or arrested stage of tuberculosis. Additional subjects to the diagnosed tubercular contacts would have to be examined, which would bring the total extra cases of latent tuberculosis up to at least 200. That is to say, if MacNagly's figures are applicable to the Navy the examination of contacts might double the recorded incidence of phthisis in the first year after the inauguration of the x-ray examination of contacts. It may, perhaps, be pointed out to limit the number of contacts per case it would be too rapid even in the recorded incidence of cases. After the first year or two the annual rate per 1,000 would probably fall.

If there are many progressively arrested cases concealed among the naval population they present a serious administrative difficulty. It is entirely probable in naval units, perhaps hundreds of healthy

definitely "arrested" but still representing a "latent" potential which has, as commented upon above, the fact that his tubercular infection will never become active again. It happens in some individuals before such cases are less liable to get reactivated or break down than those subjects who have never been infected; it might be possible to justify the retention in the Navy of those given with a ray evidence of old tubercular lesions.

Perhaps the incidence of tuberculosis is not so high among seamen contacts as household contacts; others and the problem will be found to be less difficult than anticipated. One method which has been suggested by x-rays some seamen contacts in eight cases of tuberculosis of the lungs who had been discovered in one of H. U. centers. Only one case out of seven pulmonary tuberculosis was discovered—just the same, too good to be true as a general rule.

In any case, the recognition of contacts is, perhaps, the most practical and economical method of employing x-rays for the discovery of concealed cases or "latent" cases of pulmonary tuberculosis.

C. Examination of Total Force.—The ideal way of using x-rays would be to examine the Total Force as rapidly as possible and to remove all cases with tubercular lesions in the lungs. This is a scheme, however, would only be successful in reducing phthisis from the Navy if all cases of phthisis are the result of contact infection in the Navy. In the paper by Find referred to in the section on contacts, various investigations are cited which suggest that about 4 per cent. of the apparently healthy population over 15 years old have tubercular lesions in the lungs, while proportions of these are active or latent proportions are varied cases are not known. This figure is roughly half that found among apparently healthy contacts in known cases of phthisis. If the same percentage held good in the Navy, there would be some 1,000 cases of concealed tuberculosis to discover. Again this raises the question—how many of these 1,000 subjects trained men would be permanently arrested cases and able to return to the Navy?

To examine the whole Navy within a year would mean over 300 radiographs, necessitating a day. It might require some eight radiologists, radiologists, some twenty-five x-ray machines, and at a modern estimate cost about 1,500,000. Moreover, the examination would have to be repeated at intervals if the Navy was to be maintained free of tuberculosis. Another great difficulty involved in such a scheme is that more than half of the Navy is always on foreign service.

Large ambitious schemes such as taking five years to work through the Navy and then repeating the process, and moreover would need probably at least three whole time radiologists, and some attendance and a permanent central expenditure of about 1,250,000.

All pointed it would seem promising to embark on such tubercular schemes, for as far as the present state of our knowledge, it is impossible to be certain if they would have any appreciable effect in

removing the normal inhibitory or pituitary influence. It is important that we never permit it to try to make some investigation in connection and apparently correct answer based personnel in order to find out the importance of the problem we should have to handle.

To conclude, a dispassionate review of the Neural Inhibitory problem shows that the induction of inhibition by means of whole-body x-ray irradiation is less likely to be successful, and is a bigger administrative cost than some methods would have to follow.

A CONSIDERATION OF THE PITUITARY GLAND¹

By ROBERT LUTHER L. HAMMILL, M.D., M.B. 111086

There have been changes in the past few brought into discussion by experiment. There is a change and advertisement. There is no longer the same, and it is now necessary if the clinician to have a clear understanding of what we know definitely about the pituitary gland at the present time, and what is merely probable but not certain knowledge, and in that way discuss the sound and rational treatment as opposed to most conventional speculation.

The most primitive organisms have a "nervous system" of sorts, a chemical and diffuse one. This has the power of attracting and repelling which we call chemotaxis. The idea of sex has developed even in the sporadic, within the material protoplasmic. In the upward trend of evolution these elements in organisms have become harmonized and collected into partially opposing forces under the control of an extensive nervous system. In course of time the nervous system has developed into something less primitive, so that chains of ganglia began to exist. Later, owing to a condensation of ganglia at the rostral end of the animal a definite head ganglion has developed. Thenceforward higher nervous systems have been imposed upon these lower ones, mental image developing past power until the chains of nervous processes is situated in the human cerebral cortex. Although thrust down into unconsciousness these primitive nervous organizations still function perfectly, indeed their continued activity is indispensable to the harmony of the whole. They still have the power to quickly and readily and target the higher systems which have thrust them down.

The head ganglion appears in the human form as one of the accessories, but most essential components. It is called the diencephalon, and that portion of it which forms the floor of the third ventricle is called the hypothalamus. It appears to be the regulator of the autonomic nervous system, both sympathetic and parasympathetic.

Now, when Nature wants to produce some growth or local effect, she uses

¹ This is a lecture delivered at Royal Victoria Hospital, Chelsea, on October 6, 1944, and again at the United Services Institute, Royal Society of Medicine, on October 21, 1945.

with a down-growth from the primitive neural tissue,—the pars posterior of the gland. This lobe is continuous with the neural tube or through the stalk or infundibulum. The so-called pars intermedia (front of the anterior lobe) The stalk which separates them is small, but disappears about the nineteenth year. It receives something of secretory juice from the anterior lobe proper and contains much hyaline and colloid material. It is said to be supposed to secrete the pars posterior. The lower part of the stalk becomes enveloped to some extent by pituitary tissue from the upper part of the pars anterior and this wall extends above the aperture in the stalk cells.

Wright [4] tells us that "some workers consider the anterior pituitary as a sort of ductless, unencapsulated by the nervous system, and regulated by a variety of roots of the other ductless glands and of certain other organs. It proceeds to secrete that master plasma." The master of the endocrine system, as we might say, and somewhat following the path of the endocrine, is that all the organs of the body work together in a so regulated and harmonious manner as to produce the integrity of the organism. If it should happen, therefore, that the activity of the anterior pituitary itself is regulated appropriately, but by means which are as present basic tissue. It is only this, however, as Lusk, [5] shows the action of the pituitary substance, to say that it is quite clear from his writings that he believes rather as follows as to the relationship of the anterior pituitary. He constantly shows how the gland is well influenced by other hormone secretions or substances, e.g. the effects of oestrogen and of thyroid changes and emphasizes its suggestive proximity to the hypothalamus. Indeed his metaphor is completely apt. He has done not refer to the conductor, but only to the lines of the orchestra (endocrine). Lusk puts it thus: "That the pituitary substance substance, which not only control the activity but also the use of most of the other internal secretory glands, is therefore thus preponderant in any disturbance of the endocrine glands." [5]

The cells of the anterior lobe are classified by their staining affinities. There are three kinds: chromophilous, eosinophilous and basophilous. The chromophilous are at least 50 per cent. of the total. Lusk [6] seems much more it appears that they are known either chromophilous or basophilous. [6], and indeed that these latter may convert back to these chromophilous cells in extreme emergency. The pars intermedia contains basophil cells. The posterior lobe consists of a few nervous and unmyelinated cells and substance of unmyelinated nerve fibres which have important connections with certain nuclei in the other endocrine. Finally speaking it may now be assumed that the chromophil cells of the anterior lobe secrete growth whilst the basophil influence are. It is manifest that an increase of the out of cells and over activity of that group may be accompanied by process and development simply of the remainder of the gland because of the narrow confines of the stalk system.

The endocrine glands form an integrated, self-regulating mechanism for securing a suitable adjustment of the organism to its environment [1, 2]. In this system the pituitary gland is assigned a particularly important position, which from a functional and developmental viewpoint, is comparable to the hypothalamus and the testicular hormones. On the whole, it is the hypothalamus and the testicular hormones, the latter through the androgens, which can stimulate or depress the functions of the other endocrine glands according to the body's needs as an organism. The functions of the other glands are of a lesser degree of complexity than those of the anterior pituitary [3], and as this hypothesis, the problem of the primary cause of the less complex disorders as indicated by fact is a solid one that the hormones of the pituitary have the power "to stimulate or retard the growth, development,

The activity of all hormones depends largely on the competence of the body tissues to respond to these stimuli. Such responses may be termed as postreceptorial. The capacity to respond varies in different periods of life so that the mature, the altered response of the tissues of the sex organs of the eunuch has just as much to do with that condition, as has the failure of the thyroid glands to produce their appropriate and unobstructed stimuli. Callipellis is a delayed late maturation of male hormones. Some of the growth hormone is reported into a young animal up to a point growth is rapid, but after that point on further growth ceases, no matter how much growth hormone is supplied.

Up to the beginning of the present century only two facts were definitely known about the pituitary gland: first, Marrow's observation of the gland with microscopy in 1858, and then Oliver and Schöten's demonstration of the activity of pituitary extracts in 1902. During this century, however, the study of tumors in neurologists and surgeons has greatly enlightened us. More recently the physiologists and biochemists have enriched the field. From the experimental point of view, study of the gland seems satisfactory, the whole or part of it in a suitable animal and then adding the appropriate hormone, external either by injection or by peak implantation and noting, to what extent these procedures exaggerate the effects of endocrine. Or again one may simply add gland extracts without removing gland tissue and then observe the effects of this superadded over supply of hormone. So the closest comparison of the tumor pathological syndromes associated with the gland have not been possible in all cases, but in a number the clinical findings have been reproduced by laboratory experiments. One must always remember that between the normal and the pathological there is a wide "grey" area and of deviations from the normal. For instance, there may be an overabundance of substance entirely causing a big part about the time of puberty. The growth hormone may have been excessive in a young boy and have worked in some direction, thus delaying the appearance of epiphyseal on his long bones, or even the same may occur on growth retardation and the

the pituitary gland into a partial aneuploidy. A similar disturbance may occur at the base of the metencephalon. Thus when the blood supply of the gland appears to be intact the pinealoma, whereas the tendency to be first large and cystic and cyst formation in some of the segments of the capsule. Any degree of narrowing of the surface of these vessels such as atherosclerosis, arteritis obliterans, or an embolism, may well have devastating effects. Syphilitic and syphilitic aneurysms can attack the arteries of the gland and so defeat normal processes. So that all sorts of grades have to be considered, ranging from deviations from the normal down to gross and far-reaching pathological syndromes.

One would dearly like to be able to describe hyperpituitarism and hypopituitarism with exactitude, first in the anterior pituitary and then in the posterior part of the gland. But clearly this cannot be done with accuracy. It can be safely stated, however, that in aneuploidy or aneuploidy aneuploidy aneuploidy will be found. In the case of normal processes the hampered cells will be found in various in all pituitaries. On the contrary in certain types of disease the hampered cells will be deficient and in cases of neoplasia there will be a shortage of hampered cells.

Accurately in an extreme example of hyperpituitarism of the pure anterior. The disease is not hereditary, inheritance may be to recognize or hereditary trend in certain families in which height and heavy jawbones are prominent features. This is probably due to a slightly over abundant aneuploidy aneuploidy. In aneuploidy we find changes in the size of the anterior and a pinealoma and a tendency to metastasize to hyperpituitarism changes in the secretory tissue which are the cause of the big hands and feet, certain of the bones are enlarged particularly those of the skull, face and lower jaw. Fingers on these bones become enlarged, and there are prominent pharyngeal bulges in the ventral segments of the fingers. Hypertrophy develops in the upper dorsal region, there is marked hypertrophy of the genital organs, the testes increase so that the anterior may double in length, and the testes are greatly enlarged. At first and especially in gonads, there may be enormous increase in strength and weight, the thyroid may become overactive, the sugar tolerance may be decreased and the metabolism rate increased. But soon we find the pure dorsal condition of a giant with no strength at all, symptoms and symptoms, with increased sugar tolerance and a decreased metabolism rate. This tragedy is largely due to a failure of the thyroid and a failure in the increased cortex. There may be hypertrophy of lymphatic tissue and the thyroid may be enlarged. The temperature is low. Owing to pressure by the aneuploidy tissue on the hampered cells nearby, and possibly on the posterior part of the gland, there may be symptoms of aneuploidy or of diabetes mellitus and of a low blood pressure.

The antihypertensive substances prevent pathology and the development of the neck, genital organs (18). It is not unusual of the anterior gland to expand into a variable amount of metastatic and metastatic of a number of

protein synthesis results. It has been shown that, in addition to the thyroid, all other endocrine glands are affected. This suggests that, with the endocrine hormones, the thyroid gland stores or produces and secretes it. Thus in the hypothyroidism syndrome the same disease process operates on the basis of the thyroid gland and on the pregnancy. An enzyme or group leads to usually chronic.

The thyrotoxic hormone is called *thyrotoxin*. After hypophysectomy there is rapid atrophy of the thyroid and involution in the basal metabolic rate. Certain symptoms result from the anterior lobe and represent the thyroid, and an excess produces overactivity of that gland and even exophthalmos. The theory has been advanced that Graves' disease is due to overaction of the hormone, but there is little evidence experimentally that this is so. Davis and Noble, however, consider that the theory is a very attractive one in this light [31]. The thyrotoxic hormone raises the metabolic rate temporarily but promptly that begins to fall, after which no amount of extract will cause it again. This suggests the production of an anti-thyrotoxic hormone.

The *thyrotoxic hormone* is also demonstrated through the experiment of hypophysectomy. The excess rapid decrease in the bulk of the thyroid cortex has no effect on the alveolar cells. This atrophy can be prevented by transplanting fresh primary tissue into the body of the animal deprived of its gland or by a suitable extract of the anterior lobe. Both in normality and in the presence of bony alveolar elements of the primary there is hyperplasia of the alveolar cortex.

The *thyrotoxic hormone* is called *prothormone*. It is thought to be the actual cause of such reactions, whereas the various hormones are comparable for building up the new many glands during pregnancy.

Cushing has described a maldevelopmental disorder due to hyperplasia and hypothyroidism. Much discussion has arisen about this strange entity. Cushing himself says, "the disorder is characterized by a rapidly acquired plethoric obesity affecting the face, the neck and trunk but sparing the extremities. It is associated in women with hyperandrogenism and amenorrhea. It is often accompanied by hypoglycemia and a positive cofasting of the bones of the skeleton. Other characteristics are changes close on the skeleton, vascular hypertension and overproduction of the corticosteroids [32]. Cushing thinks that the essential feature is a bony alveolar adenomatous hyperplasia. But it is known that in these cases the alveolar cortex also shows hyperplasia, and that the thyroid is enlarged and appears in the alveolar cortex close. The system are used, the bones are densified and soft, there is hyperplasia of the hypophyseal tissue and the thyroid may be enlarged. In young girls sexual precocity with amenorrhea are followed by rapid and amenorrhea. Usually no elements of the alveolar cortex produce an alveolar pattern, without the presence of a bony alveolar, but there is hyperplasia of the bony alveolar cells, and Cushing regards this as an indication of their functional activity.

Glenn of New York Hospital has described a case of hypopituitary syndrome in a male in which the only symptoms of the entity known as Cushing's syndrome was a hypotension [12] and Russell, Evans and Lincoln have described two cases in which the salient features were cardiac arrhythmia, hypotension and edema [13]. Cushing's syndrome was imperfectly manifested in both examples. Both males suffered from malignant nephroses. As regards these hypopituitary male adults, it is doubtful that after castration they always develop, and in a lesser way the same thing happens in the neoplasms. In these cases the adiposity and the electrolytic upset and hypotension are difficult to explain. Suffice it to say that the removal of an adrenal adenoma causes a remission of the disease and in the absence of such a tumour production of the pituitary gland has produced a similar remission.

As regards hypopituitarism, the clinical picture most closely resembling experimental hypopituitarism, is Simmonds's disease. This is a rare condition, twice as common in women as in men, and generally occurring between the ages of 30 and 40. It is due either to an infection starting off the gland's blood supply or to a tumour or carcinoma. The cardinal features are an increasing marked atrophy of the face and limbs, sexual impotence and atrophy and a progressive and persistent anorexia. The patients fail to gain weight, even on a heavy diet, and yet atrophy is satisfactory. If a patient can be induced by diet it is strong evidence against Simmonds's disease. Should the pituitary be surgically diseased, continuous of function never. The Lerner type and the Simmonds type are inseparable entities. The former being of quite attractive proportions, good complexion but lacking in primary and secondary sex characteristics, and the latter according to Wright [15] being the Fat Boy or Frodo-like. Progress in the young gives to the tubular form of Simmonds's disease, where the child is wasted and character and in his disease before he has even begun to grow up. Some forms of dwarfism are due to disorders in the other glands and some to nutritional deficiencies.

Pituitary's syndrome is the typical syndrome of hypopituitarism before puberty, whereas in the adult Simmonds's disease or adipose diabetes is likely to manifest itself. The hypopituitary hypopituitary syndrome would appear to be present in both. Adipose diabetes seems to have a common cause because of their suprarenal origin [16]. A condition of obesity and delayed sexual puberty is not uncommon among school children, but they frequently achieve a sexual adolescence, if somewhat delayed, and in these intelligent patients recovery is rapid. This may be due to the persistence of the chromophobe cells in an undifferentiated state. The true Frodo-like syndrome is apparent in the schoolboy tumour case, in a child with rounded face and legs, redness, and obesity extending down to the elbows and knees, chiefly about the shoulders and pelvic girdle. The face is, usually, and with hair in these it, is scanty and very fine. The shape of the body presents a liability. To the symptoms of diabetes are added those of hypopituitarism. The

which are not identical, and (3) a low temperature is the rate determining factor. Polymerization proceeds more vigorously at 100°C. polymer with molecular weights above 50,000 is produced in the later stages when the initial initiator concentration is low. Presumably there is a degree of polydegradation. Hypernephroses with progressive changes produce the conditions, which are usually due to obstruction of the duct. It becomes evident that both lobes are eventually affected and that both the interlobular and ductular mesothelium atrophy. Testicular atrophy and the testes are a secondary response, but the progression must also be noticed. The testis may be the source of proteins from a hydrophobic or the duct irregularly. Liddle Wright Langman Brown reported that the "1st Stage" Polymers was the nature of a 1-alkyl-2-alkene [17].

In reality, then, for the disorders of the anterior gland is they disorders of hyper- or hypo-pancreas. It would be obvious at this stage that a large number of the symptoms pertain to both lobes. This is largely due to proximity of the lobes upon these lobes is a confined space and also to disturbance in the regulatory arrangements and processes on secretory nerves. Further, it becomes evident that the anterior lobe has its effects upon metabolism as well as the posterior lobe, without the express of the thyroidal hormone in connection with thyroid activity. It is these metabolic problems that make experimental study difficult.

The study of the posterior lobe is a very complex one. It would be thought that experimental removal of the primary would cause death but this is not necessarily the case. Several difficulties attend these constitutory conditions. The removal of the gland was not always complete. The presence of accessory gland substance complicated the procedure. Again there might be compensatory hyperplasia. Thus there was the difference in the conditions in various species used for the experiment. Finally, and most important, it was very difficult not to damage the adjacent hypothalamus at the same time. Polymers, glycerols, general atrophy have of our functions and clearly when all put down to loss of primary tissue, then studies in 1930 Darrow and Bailey in 1932 [18], and Liddle and Bailey in 1934 [19] showed that these various results were possible after damage to the hypothalamus alone. Druggan [20] from the work of Harman, Telford and Bailey, that experimental lesions of the tuber cinereum, the pituitary itself being intact, would produce polymers, and that removal of nearly all the primary, provided the base of the lobes was safeguarded, was not followed by polymers. The proximity of the tuber cinereum to the pituitary is a matter of the highest importance. Experimental technique was greatly improved after Harman [20] demonstrated that the gland was capable of ablation by cauterization, leaving the hypothalamus unharmed, and after Harman [20] had shown that the hypothalamus could be punctured from above after creating injury to the gland. Bentley described the accessory end-metabolism of the hypothalamus in 1932 [21]. He considered that the nucleus supra-opticus in the anterior part controlled the post-

sympathetic and that the parasympathetic innervation of the posterior part controlled the sympathetic. He demonstrated that after section passing down the stalk into the pars nervosa of the gland and thus away from the supra-optic nuclei. Thus the latter maintains that it is not the posterior part of the gland that is to be looked on as the sympathetic—the hypothalamic part, particularly the nucleus. Fisher and Ingerson [25] presented in their experiments that superior and inferior branches of the median eminence may part of it would produce diabetes insipidus, and that deeper lesions would produce permanent polyuria. Corning [24] has shown likewise that the median eminence was removed by the incision of the pars nervosa, and that posterior rather marked the lateral nuclei through the median eminence of the pars posterior, or else passed through the stalk into the cerebrospinal fluid of the 3rd ventricle. His experiments were confirmed by Molinoff, who used a silver clip to clamp the infundibular stalk and so thus back these sections. It is now considered more probable that all such incisions reach the lateral nucleus through the basal secretory system, and appear proximal to the cerebrospinal fluid [26]. In considering water metabolism Corning asked himself what were ischemic lesions and what paralytic lesions resembling them and we understood this point: we should not think metabolism in the water-scope. Fisher and Ingerson were also of opinion that the transient polyuria following operations was probably transient in character, whereas, in view of the latest proved producing a diabetes insipidus was in all probability a paralytic lesion.

The disturbances which need to be put down to lesions of the posterior pituitary gland were now put down to lesions anywhere in the hypothalamic posterior pituitary mechanism. They consisted of disturbances in the metabolism of fat and metabolism of water metabolism, and of the blood cholesterol content, as well as disturbances in the regulation of body heat, genital disorders, disturbances in the blood pressure, in the rate of hypotension, and finally the important endocrine lesions or pathological syndromes. But in the present confused state of our knowledge further discussion of the role of the posterior pituitary gland in metabolism is scarcely possible. Indeed Wright maintains that the present tendency is to minimize its importance and to attribute the results of lesions to disturbances in the secretion of the anterior pituitary hormones [26]. Olsken was made in the point when he summed up by saying: the posterior lobe is but a displaced part of the tuber, and its displacement in far back in the scale of evolution would seem to point to a close functional relationship between it and the anterior lobe and pars nervosa and with the region of the brain where it was derived [27].

Before passing from the diabetes territory it is well to remind ourselves of the constant reference to guinea pigs and goats, in water-scope which occur when the hypothalamic posterior mechanism is damaged [28]. Such signs do not occur after the tuber has been cut. It is therefore inferred that they are probably due to destruction of the parasympathetic

Let us now consider how I can relate the theophoric aspect of the posterior pituitary gland and, if there is place, a which we may distinguish of the nerve — all the other pituitary which acts upon the hypothalamus, then another hypothalamus controls the secretion of the kidney and -disturbances secondary pituitary. A shortage of posterior will exert control over blood and blood pressure and lead to such diabetes mellitus. There will also be state of the heart.

We are not concerned here with diabetes, which Hansell explained as secondary to the delayed action disturbance of blood but it is secondary to anterior pituitary because of its effect on diabetes mellitus.

The disease may be due to lesions of various sorts, but involving the hypothalamus and especially the anterior supra-optic. Organic lesions such as epithelial basal meningitis, craniopharyngeal epithelioma, have sometimes produced the same. There have shown a distinct hereditary tendency for the disease, and psychological factors may sometimes play a part. There is evidence, much more so than in diabetes mellitus, so that it is used to attempt to break the food intake. Sometimes there is excessive hunger, sometimes no appetite, the temperature is depressed and the quantity of urine passed in the twenty-four hours is so great that it frequently brings the patient to the doctor on the first instance because sleep is so much disturbed. The normal weight of the urine is not increased and abnormal glycosuria is absent. It is commoner in the male sex. A fall in the volume of water following a cold free diet is evidence in favour of the disease. The diastolic pressure is sometimes increased because of the change in the posterior pituitary region.

Psychological theory may be due to some disturbance in the hypothalamus posteriorly situated. The anterior plays a part in the transfer of fat to the liver, hence shortage may be responsible for accumulation of fat in the tissue deposits. "It has been previously stated," says Langdon-Down, "that any case of obesity can be controlled by diet alone, but I have repeatedly seen patients with hypopituitarism who have starved themselves into a state bordering on anorexia without being weight appreciably diminished with other measures, however, during my and so noted [24].

A more scientific way for clinicians to understand the problem is the study of tumours in the pituitary area, and in view of the present experimental and biochemical position, possibly the soundest way. Neurologists and surgeons have to make up their minds about one or two concrete matters. They have first to study the endocrine syndromes presented, and then to settle what is the nature of the lesion, whether tumour, granuloma, or cyst, then whether it arises from the primary itself within the sella turcica, or from the adjacent tissue above the sella turcica, or whether it is a tumour of the pre-pituitary region (a "neuro-larval" tumour as it is generally called), and finally whether the tumour is malignant.

There are four types of adenoma in the anterior part: chromophobe,

maternal, congenital and acquired. The chromophils seemed, in perhaps the commonest form, to indicate that they did not mature from one chromophyte to another, but that, at maturity, they were shed by the epithelium, so that neighbouring cells in growth differentiated into pairs of cells in self-renewal, so that the chromophyte population within the stroma cell in the area of the uterus increased rapidly, or at least with much ease. This occurred either in the endometrium, or in the wall and lumen of an endometrial type of the genital (chromophyte) duct. Looking rather than into the duct, some of the cells in the chromophyte type. They show no specific staining properties. Such tumours are liable to cause hyperplasia of both the wall of the duct and expansion of the cells in the lumen by a type of the wall, resulting from the ductal epithelium. Presently they develop a second ductal lumen, and finally burst through the ductal wall, when the tumour ceases. They come to fill the interepithelial space at the level of the lumen. They press upon the epithelium which is just above them, and they even reach the outer aspects of the vaginal lumen. Thus they cause primary epithelial changes, but they do not cause papillomas. The various endometrial symptoms are those of normal depression for tumour expansion in steady maturation or involution. The duct becomes firm and brittle, and there is loss of hair. Vaginal tolerance is increased and there is steady change with a lowered metabolic rate. The blood cells move when the ductal epithelium only to move in the tumour towards the central cavity and cause intraluminal pressure. The cells of these tumours are non-granular and arranged in a wide nested column, slender in type. The transitional type conforms to this pattern with the exception, that there have episodes of chromophyte (blast) groups of cells in these tumours, and to that extent become secondary tumours.

The chromophyte tumour is a secondary, but proper. The multiplication of chromophyte cells leads to hyperplasia. If the patient is still growing, tumours result, if he is an adult, tumours result. The tumours are smaller than the chromophyte type and tend to occur when the limited number of the cells mature, following that they mature as seen in the endometrium. Thus blood supply is not a factor, nor have they tendency to haemorrhage and cystic formation. They press upon the chromophyte cells behind them and upon the pericervix, and in this way cause all sorts of metabolic derangements which are really in the process of the pericervix gland.

Chromophyte tumours are usually very small. As Chouhary has pointed out, they are often associated with tumours of the uterine cavity. All his patients were young adults, mostly females, and their average age was 18. Adiposity was confined to the face, neck, and trunk. They tended to be second-childhood to have postmenstrual abortions, and they suffered from tumour pain. All sorts of normal dysplasia were mentioned, and there was no abnormality in the normal tumours. They were ductal and

gathering, there will be just a stare about the children and they had a tendency to vomit again. They were weak, fatigued, extremely nervous, and they showed some vascular hyperemia. It is generally admitted that this is a polyglandular syndrome and it is quite possible that the primary tumor is in the adrenal glands. Looking back just now on the hyperfunction of the islet cells in the pancreas, and whether there was a function of these cells or not, he regarded this as evidence of their hyperactivity.

The staminal portion from which the anterior part was developed in the embryo is called Rathke's pouch. Remnants of this embryoplastic development remain, and from these rudiments may arise numerous cells similar to the basal epithelium of the pituitary. These tumors become cystic, and what is still more valuable in the many diagnoses is that they become partially calcified. They occasionally arise above the diaphragm of the sella and attain a very considerable size. But another valuable point is that, being congenital, they begin to show symptoms in early life, according to Cushing one third before the age of 15. The patient may be entirely normal or he may show all the signs of diabetes, infarction, or a premature old age. There may be extreme obesity or extreme emaciation.

It has already been stated that the upper portion of the anterior lobe develops the stalk of the posterior part, and the development of cell rows above the bile cells. Tumors of this part are sometimes called, because they are derived primarily from the anodermis. They may arise anywhere from the stalk above the bile or below it. They frequently become cystic, and like Rathke's congenital cysts they are inclined to calcify. They may be the cause of a Frohman's syndrome, or they may be associated with diabetes mellitus and other metabolic derangements. They can attain to a very considerable size. Should they arise from above the bile, headache resulting and optic neuritis will be present, just as in many other intracranial tumors, and should the tumor extend backwards and press upon the cerebral peduncles, there may be signs of a pyramidal lesion, possibly bilateral. In any event, the optic chiasm is pressed upon, generally early in the case, and there are also the signs of increased intracranial pressure. As the tumor grows downwards, towards the sella, it erodes the chorda petrosa, and later on the bony overgrowth of the sella, all of which may be seen on the radiograph. It approaches the pituitary gland downwards so that it comes to have a convex upper surface. The calcification may appear as a more spiculate or as a large mass.

There are also the tumors which invade the anterior gland. None of them is malignant in nature. Tumors of the posterior part can be very malignant. There are, however, tumors which do not originate in the tissues of the gland, but which cause pituitary symptoms and signs. These are sometimes called parasellar, or "neighborhood" growths, and they are truly outside in their nature. Two of them are malignant,

Thyroiditis, especially, those which originate in the choroid, and metastatic tumours from other parts of the body. Meningeal gliosis from the displacement of the ridges of the spinal base, gives rise to optic atrophy and various local defects, such as hemianopia, etc., are good pointers to the various causes. Intra-ocular tumours, affected more severely, than the other. The pressure of tumour

in or on the base of the brain may lead to hemiparesis, and should it impinge upon the anterior lobe, then there may be motoric fits or distant states. Sometimes there are general convulsions. Headache is not severe as a rule, and symptoms of primary apoplexy are generally lacking. The lateral processes are eroded and the walls may be somewhat flattened.

Empysematous aneurysms in the neighbouring walls of White aneurysms, however, for these purposes.

Another condition which must always be considered is hydrocephalus of the third ventricle. This generally occurs, in young people and may be the result of some far off lesion, such as a tubercular tumour of the cerebellum impinging on the fourth ventricle and so damming up the aqueduct of Sylvius. Sometimes an cystic tumour grows upwards into the third ventricle, and by blocking the foramina of Monro cause hydrocephalus in the lateral ventricle.

There are several forms of chronic adhesive meningitis and chronic epinephalitis, meningocephalitis which may invade the region. All such lesions are capable of pressing down upon the gland, and sometimes may be a permanent feature.

Age is an important point in diagnosis. The choroidophlo tumours are rare in adult life. Rokitnik's cystic process symptoms is more than a third of the cases before the age of 15. Meningeal tumours in patients over 40 years of age. Hydrocephalus in a male is rare in young people. Primary optic atrophy is associated with primary tumours passing upwards from the chiasm, whereas papilloedema is more frequent in supratentorial growths. Various epinephalitis tumours show characteristic signs above or below the chiasm, these types, and choroidophlo tumours which have through the chiasm may be confused with cases of hydrocephalus in the third ventricle. Rokitnik's cystic being unimportant, are frequently associated with function and mental disturbances of growth, sex, and metabolism. Cases of both types may show a coarse redolent disturbance, chiefly sensory and depression of sex, but only in moderate degree. The timing of the onset of symptoms is a valuable aid. Thus supratentorial tumours are apt to begin with epilepsy, phlycten, sometimes from leptomeningeal pressure, and then signs of compression of the choroid, before reaching the clinical processes and fits, evil causing endocrine dysfunction from pressure on the primary gland. Finally the reappearance of good vision in disappearing tumours above from tumours below the chiasm. Intracranial tumours cause a uniform expansion of the entire cavity called "bulging", tumours above the chiasm with the clinical processes and eventually bulging on the entire cavity. Hydrocephalus is prone to do the same thing and it is here that tumours

topography must be necessary to guide the dissection. Calcifications in another part of the tumor. In brief, he present in 1970, and tomorrow, but not in hypophysectomy.

Surgery is a relatively hopeful method of treatment because a number of these conditions are not malignant. Metastasis is infrequent and 10 per cent. If tumor is becoming palpably enlarged it must be either done, and is also removed so that is one of the few instances when we can see something surgically. Surgery is not without the whole concept of origin is removed, because it is so intimately adherent to the surrounding dura mater, and thus, some dura envelope, the cavernous sinuses and important nerve trunks on the basis of the sella turcica. Indeed, removal of the sella sometimes puts upon these structures enough tension upon and compresses part. For this reason surgery for the internal carotid and subject the removal of the bridge is considered undesirable. There is no satisfactory substitute at the present time, for except hypophysectomy, but thyroid or small doses may help, because basal carotidism is depressed. Pituitary, thyroid, and some of the other pituitary hormones, may all come into play as adjuncts in the treatment.

Treatment of pituitary dyscrasias follows these lines, broadly speaking the use of the appropriate hormone as a substitute, and possibly the use of an anti-hormone withdrawal of the gland, and operation. In carrying these methods one must always keep in mind the stage of the disease. Take acromegaly as an example. It is not impossible for anterior pituitary tumor to benefit a gland which is already secreting too much anapausal manufactured hormone because the enlargement due to the overproduced tumor may compress and obstruct the hypophyseal cells of the anterior lobe and so create a lack of the gonadotropic hormone. The end gland may be given by words to somewhat importance. Again, when the disease is well established, there may be hypogonadism with a low basal metabolism. In such circumstances thyroid extract is the obvious line of treatment. If diabetes complicates the case insulin is called for, but some of these cases are refractory to insulin. Surgical removal of the tumor may relieve diabetes, as in all cases under the response to insulin as adequate now. In the latest stages, when weakness, myelopathy, and low blood pressure become manifest, then the central venous of the anterior gland is considered. One has to decide at any given stage which hormone is most in depletion. Sometimes a ray bombardment of the gland from several directions will produce a considerable improvement. Would the tumor press upon the posterior lobe or interfere with the hypophyseal hypophyseal apparatus, and in some diabetes mellitus, then pituitary apparatus are considered. Would headache be so severe as to defy all medical treatment, and should the tumor be progressively enlarging, then there is no other route to operation. A ray would be given could be 10 per cent. of cases, and after operation there is improvement in 70 per cent.

In Frolich's disease the same principles are applicable. Here we have the symptoms of castration added to those of hypopituitarism. Thyroid gland will play its part, and where there is already primary castration will enhance the effect. In speaking of Henry Langdon Brown tells us that 'it is generally accepted that primary growth of the testes is arrested, but I have seen not a few instances of greater improvement under continued primary and thyroid doses of the latter by itself to stimulate it to more co-operation' [30]. He recommends insertion in the testis from 1 to 2 cc. of the anterior lobe with small thyroid doses, such as 180 gr. of the dried extract. If the gonads are very backward and primary delayed, he recommends testosterone propyl. A hyposthenic need not necessarily shorten life. Bachelard should be taken as a warning, and if the exact cause can be located, operation may clear up the whole trouble. Pituitary may be of help of polypeps or other signs of posterior pituitary trouble appear. Sometimes it is difficult in these cases to make an accurate diagnosis in which endocrinologic surgery can very helpfully bring.

Pituitary is very successful in the treatment of diabetic neuropathies. Opium has no effect. Some authorities think that pituitary is a combination of substances as for morphine, hence the control of diabetes is as it is opposed by some unpleasant features such as over-acidity of the blood and an increase in blood pressure. One injection of posterior pituitary has no effect for twelve hours and gives the patient a reasonable night's sleep. Doses of the isolated hypophysis sufficiently enough have a marked effect in the absence of pituitary. Constant injections are usually given, therefore some spray the nose with the extract or give it as snuff. Should the cholesterol blood content be high one gives a diet poor in fat, but rich in carbohydrates and insulin may be used. Where posterior lobe thyroid may be used. Sometimes sleep is not played upon the salt tapers are functional. One should not forget the possibility of syphilitic infection of the pituitary. If the Wassermann reaction is positive then one should try medical prophylaxis.

Perle Brown has now systematized the hormones of the anterior gland, and called them "Androxen." Androxen G stands for the growth hormone and Androxen B for the sex hormone, and so on. Pituitary and hormones have been prepared for the gonads, testes, thyroids, and growth function of the anterior pituitary secretion. The extract of the posterior gland is called "Pitoxen."

A comprehensive review of this vast subject is bound to be inadequate on the basis of a lecture. It is proposed to conclude this survey with these three observations.

The anterior gland has a glandular cortex surrounding a core which is chiefly composed of nervous tissue and is intimately associated with the sympathetic nervous system. It secretes a powerful hormone. It is permissible to regard the pituitary as an anterior glandular cortex

OUR MENOR TRUTHS

of the same. I have found, from these studies, I believe, a few things, I will try to suggest to you. Good. Good! Good!

Let me tell you about and Mrs. Peppy with Mrs. Turner, report them to you. I am in a place, in Figure. He and Mrs. Turner give him a little more. As the very remarkable movement, he found the work in right. I suggest, in this case, was wrong. In his movement, it is small wonder that, in keeping down the little back, coming out of the wood, it did open my right foot, which brought me great personal pain. But personally, with looking, it went away for the moment. Later, in the strange going home, he writes 'but my foot began more and more to hurt me, which, Mrs. Turner, by keeping her warm hand upon it did ease much. But in that when we came home, which was just at 11 at night, I was not able to walk from the house and to my house without being helped. He is not, and there, a very thick (inflamed) plate, really. W. G. C. (said to my feet and leg since, but in great pain all night.'

So, in 1867, Peppy knew so much about sprains, as we do to-day, about the so-called joint pain. He observed what was recognized by Gaiter, a few years ago, that walking cured the pain. That gentle exercise and massage carried out by Mrs. Turner, did ease much, and that sleeping helped him to sleep.

But what is a sprain? Nobody has seen one. We recognize the symptoms of swelling, pain, loss of function, etc., following an injury, and call it a sprain. We know it is a lesion of a ligament or, there is some one's effort in the underlying joint, and it is not a bone injury, but we show our ignorance by the way we define it.

Truer defines it as the case of injury which results in a joint after the performance of rough movement of the joint, caused beyond its physical ligament limits.

Garber: A sprain is the result of forced movement which separates the existing surfaces of a joint and momentarily separates the joint surfaces.

All definitions are similar. All define the mechanism and not the lesion.

The pathology is assumed to be a minute tearing of a ligament, simply because it is caused by movement which stretches a ligament. The next meaning is inflammatory reaction, the acute sprain which leads to localized thrombosis, the chronic sprain.

But why should such a minute tear cause such disabling, symptomatic and why should a small molecule of fibrin tissue cause chronic pain? Nobody knows. In fact, does such a lesion exist? A lesion of this type, if it all exists, should be accompanied by blood-stained effusion, but it is not.

limiting that is only open to those 8 companies. It is always possible, and more open, for any firm, small or large, not to follow this rule, thereby to work in the sector, supplying equipment, labour, technology, etc. (but then it is not strictly situated in the sector).

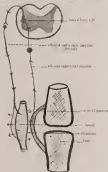


Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher for the 10 trials condition than for the 5 trials condition. Error bars represent the standard error of the mean.

But the chief stumbling block to acceptance of the idea of a trans ligament is the lesion *a, b*, in fact which Lewicki discovered that separation of a separated ligament with no other resulted in permanent loss of the spine. Surely this is not possible if the lesion is a tear? And finally, Lewicki exposed the affected ligament in two cases of sprain, and was unable to demonstrate any tear in the ligament.

"What, then, is a system?" We know that a *central* (brain) system is around a point, and these ligaments are of various lengths. They are composed of connective tissue, but are also abundantly supplied with sensory nerve endings. In 1902, Bigsby wrote: "Joint ligaments are abundantly supplied with nerve endings in the skin of the fingers and more abundantly supplied than the skin elsewhere. The skin, moreover, is a specialized sense organ. For too, are the ligaments which attach to the central nervous system independent of the p. system of the joint. The strength of any joint is due to the muscular response to these impulses, and not to any inherent strength in the ligaments themselves. Leriche calls the ligaments 'passive work'."

And to Leriche, the nervous elements of a ligament are responsible for the system syndrome. During the Great War he observed that after an injury the volume of the injured part first diminished and then increased. He assumed that this was due to vasoconstrictor reflexes and wondering if it could be prevented, he reported on acute ankle sprains with nervousness. The patient was released without bones and the nerves far removed without bones. He did the same thing in a chronic sprain and the patient was again permanently cured. Obviously the vasoconstrictor effect had nothing to do with the permanent cure. He found that he could inject early sprains and even prevent swelling along, place. And he concluded that nervous reflexes were responsible for sprains. To Leriche a sprain is specially a reflex phenomenon brought about by injury (fig. 2) stretching of one line of the sensory nerve endings in the ligaments. Afferent separated signals pass to the cord, afferent volitional reflexes occur which pass to and dilate the vessels in the neighborhood of the injury. Effluent and outpouring of vasodilation take place. These further stimulate the nerve-endings, again afferent impulses pass to the cord, and the process becomes an established system state. A chronic sprain then is not a module of kinetic tension, but the various parts which for some unknown reason persist in certain state. The symptoms of nervousness are by breaking the reflex arc, not allowing accuracy to occur.

Perhaps his theory lacks absolute proof. He says, that the "new" of injury, but Leriche's conception is at least sustained by the dramatic results which are obtained in practice.

But, enough of theory. Leriche's treatment of sprains consists merely of injecting the sprained part with 1 or 2 per cent novocain. It is no more difficult than giving a hypodermic injection, and the risks are negligible. Sometimes 10 or 20 c.c. are sufficient. The pain is immediately relieved, sometimes the symptoms of nervousness were often a second and occasionally a third. But the method has one drawback. In acute sprains and in chronic sprains, exactly two hours after the injection the patient will become pain at the site of injection. He describes it as being like tooth ache. This pain lasts four hours and then is suddenly dissipates. But it is very strong so that the method is reserved for cases of severe sprains.

and the pain is explained by the pain in the injured. At first we thought it due to the non-therapeutic effect of the "protective function" of the pain. On paper this pain was completely a side effect of the thought to be done (painless), now we think of the "protective function" of pain. We thought that waiting larvae around the pain. We used the patient after the operation. And the same pain occurred. Stopping the sprain after operation still gave a relief. Then we found that operation of value effectively, relieved the pain. However, the light showed the antibodies which existed in sprain in operation. After an operation practically no pain was felt. It is apparent that a sprain was difficult to completely relieve the pain with a drug, relief was not still looking for an ideal solution with which to treat sprain. We found that the pain is due to the non-therapeutic.

I am convinced of the value of the method. All forms of sprain and other sprain have been treated therapeutically. Treatment of which have proved the value of the method. We only have a series of sprain sprain by the method, as we feel that this is a more or less quickly that they do not justify the pain which operation relieves.

The figures of seven stable sprain are treated from June to November. This is shown (Table 3) with comparative figures for 1916 when all the

TABLE 3—SEVEN STABLE SPRAINS 1916

Number of cases	40
As compared to 1916 sprains	121 cases
Number of cases treated	365 % = 100
Number of cases	40
Average duration of sprain	1.5 days
Average number of sprain	1.5
Ratio treated to the untreated sprain	1
Comparison of cases	
Number of cases	1
Ratio	1
Ratio	1
Ratio	1

more usual methods of treatment were stopped sprains, sprains, etc. Perhaps you are struck at 121 days being the length of sprain for sprain. It suggests too. Of course sprain which still accepted as severe cases generally where fracture is suspected. This probably accounts for the length of sprain. At one rate the two cases represent similar cases.

The seven sprain would formerly have been treated by manipulation. They came with histories of trauma and falls months or years previously with persistent pain or weakness in the table. Could this be considered have been treated by manipulation?

After the plaster has been removed as a series of months. Further of the table I have generally found that tenderness and pain are felt in the anterior band of the anterior lateral ligament and showed in a sprain.

aponeurotic bands composed of two parts—superficial and deep. The former is attached to the humerus, and the latter to the scapula. The superficial band is composed of the aponeurotic bands of the two muscles, and the deep band is composed of the aponeurotic bands of the two muscles.

The superficial band is composed of two parts—superficial and deep. The superficial band is attached to the humerus, and the deep band is attached to the scapula.

Fig. 1.



Fig. 1. Superficial band.



Fig. 2. Deep band.



Fig. 3. Muscle system.



Fig. 4. Muscle system.

Fig. 1.—Superficial band. Fig. 2.—Deep band. Fig. 3.—Muscle system. Fig. 4.—Muscle system.

Fig. 1.—The results do not depend on the quantity of the species but depend on the quantity of the ingesting species. We have found our best results in white and black mice, and our first successful results in double mice.

So far I have dealt with ingesting species, but the principle can be

ingested in their place rapidly. About 1000 mg./g. of the tissue (about 10 mm. long) were immediately examined by a few drops of 1% eosin solution. Tapered plant fragments (over 1000) were found to be immediately and permanently dyed by taking up the eosin in the apical part of the gastrovascular. In *Hydra*, *Hydra*, and *Obelia*, Schmitt¹⁰ (North-Dakota) is reported to find from the apical end of the gastrovascular system (which he was using to help in the separation of the



Fig. 1. Effect of eosin on *Hydra*.

colony from the surrounding water). The plant material was found to be dyed, and the tissue was found to be dyed. The tissue was found to be dyed, and the tissue was found to be dyed.

But even so, some smaller fragments of the gastrovascular system (about 1000) were found to be dyed. The tissue was found to be dyed, and the tissue was found to be dyed. The tissue was found to be dyed, and the tissue was found to be dyed. The tissue was found to be dyed, and the tissue was found to be dyed.



FIG. 1.—Wagner (right) and Mr. C. C. Wagner.



FIG. 2.—Wagner (right) and Mr. A. G. Wagner.

Wagner, A. G. (aged 40). Well built, reported right shoulder four weeks before I saw her. Photo showing range of restriction considerably before and after operation of the suprascapular tendon in R. scapulum.
(Doubtless, Wagner, do not feel any longer her at all.)

In November 1940, I attempted to reduce a closed degree I am in contact in the attempt to heal non-union. The non-union was not oblique, and internal fixation had to be used. Four days later, the plaster fix to the fragments did to my surprise, the fracture was now open enough to make it could be made without any pins or screws. We then began to treat rotator fracture where long bones occur readily, and where fibrous scars, if it occurred, would be no great disadvantage with accurate exposure and immediate functional activity (walking). The results were very satisfactory. The diagrams (Fig. 3) show some such fractures where walking without any splintage or support has been adopted in the treatment and the patients themselves have returned to work a few days after a series of exercises. (Occasionally two or three exposures using Böhler's technique, have been necessary). It is of supreme importance in such fractures to remember that only first-degree fractures are accepted for internal and external stabilizing apparatus were involved, otherwise deformity would develop. Fortunately this is readily and accurately determinable clinically.

In conclusion I would like to re-emphasize to extend this method to the treatment of osteoarthritis. In my opinion this disease is due to local signs effects from periarthral injury, resulting in hypertensive disease. Instead of the bone when the articular outlay, which leads to stiffness, deformity, and pain, cause excessive calcification of the diseased bone due to metabolic interference with its blood supply, as shown diagrammatically in Fig. 4. I have observed that patients with arthritis, however, have a point of maximum periarthral tenderness, which sometimes requires release. Heat therapy and other forms of physiotherapy are then carried out and results seen to show that, where both bones are affected, one of which is impacted this time requires better to physiotherapy. Just the same are all my efforts to be used. I merely quote them to refer to your minds what I believe is the true application of the method. Is not all disease non-traumatic in origin? Can we not readily study diseases from arthralgia fibrosis, which we do with degree to simple sprains by the division of some nerve supply?

In conclusion I would express my indebtedness to Professor Ben. Lomax, of Birmingham, for demonstrating a method of treatment which I have found to be of considerable value, and also for his kindness in sending me reports and helping me with the preparation of this paper.

JEWISH LIFE IN EILENBERG, THE POLISH

By SAMUEL L. JACOBSON, M. A., of EILENBERG, POLAND

THE Palestinian landscape was preserved in a rather unimpaired manner until the depopulated Jewish villages and villages were transformed into Jewish Group settlements. These settlements are outstanding places in a country visited by the average tourist or visitor to Palestine. They all present to almost perfect picture of a continuous unbroken life, typical of the experiment in practice. I have now visited a number of them in conjunction with the diary and it seems worth while recording what happens here.

The settlements are small communities of Jews who seek to settle in the land. They are brought into the country under the auspices of the Jewish organization. The Jews come from all over the world, though Poland leads the way. There are a number from Germany, though not so many as might be expected owing to the difficulty of getting their money out of the country; a number from United States, and a few from the British Empire, France, and the United States. The Russian Jews came in mostly after the War. Only a few are coming in at the present time, as they mostly got out of their country, the only exception from Russia being exchange prisoners that is to say the exchange of a communist in one country for a Russian in Russia. These coming from America do not tend to stay in the country. On arrival at a settlement, the immigrant endures for two months the loss of a home, and to learn Hebrew. At the end of that time he is considered fairly proficient and may then become a member of the settlement. But he need not become a member, in which case he has no voting power or voice in the control of things. Hebrew is the official language. Yiddish is rather talked and other languages are definitely discouraged.

The settlement clings to the immunities, ideal above everything is shared. Out of two parents are the only things which a person can call his own and these garments are practically confined to underwear. They reserve the money, but they get various allowances towards expenditure being permitted but not allowed. When a child is born he is reared from his parents as soon as the mother is able to work and is taken care of in the school house till the age of 3 after which time he goes to a kindergarten till the age of 6. At this age he starts going to school, and may go back and live with his parents in the evening if he so desires. The idea of this is to allow every adult to do as much work as possible during the day, and at the same time to free the parents of the responsibility of their own children and in this way to prevent the economic and social factors controlling the back into from coming into play. Each worker has a complete holiday on Saturday and it seems to have a fortnight's holiday a year.

The community work of Jere is a part of their education and it seems to begin with them usually going along the main thoroughfare, the main street, the main mill stream, back to the main thoroughfare, and afterwards, and it is usually a matter of less self-sufficiency, almost exclusively depending upon things from outside home, i.e. sugar and tobacco, whilst everything else is grown or made on the premises.

We went round the various workshops and they were particularly striking in their general layout and in their efficient and systematic up-to-date equipment. All important machinery is of the very latest and the very latest, and it enables the community to make their furniture, houses, food, and everything else in the cheapest and most efficient way.

Perhaps the most interesting feature were the children's houses. There are generally two, one taking the children up to 5 and the other from 5 to 8 years. They are beautifully laid out, with everything, or everything—small showers, small baths, miniature chairs and tables, and beds, all kept very clean, and all of very good material. The children are taught to make themselves useful at a very early age and are set to work in cleaning houses and sweeping the floors from about the age of 4 onwards.

When they are old enough, normally at about the age of 6 they go out into the fields or the workshops during the afternoons and help in the general work, and then at first up till they finally leave school at the age of 17. At school they work mainly in the mornings and are taught besides the usual subjects, English and often French. All education is, of course, in Jere, and English is not begun until the age of 12.

The feeding system is interesting. There is one large central dining room where evening meals are eaten in less consistently being served, though the non-sprinkled workers come in at fairly definite hours. I have now fed in several of these restaurants and the standard of the food so far as I have seen it is very high. The feeding is not unorganised, as it is imported, and in at least one restaurant the hot was not worth drinking. The tables are rather like those found in ships, a large oval board by side of plate, and completely fitted out with mechanical serving-waiting machines. The handling is completely fitted. When a table is cleared from an entrance will work within the settlement it is not dangerous to bring it into the room, on account of fire interference. Apparently no heat is set upon the quantity of food taken and eaten (nearly) very little waste was seen over the fact that one person can do more work than another.

The community is managed as I have said under the management of the Jerean organization. In charge of each settlement there is a head man or "head man" who is elected for this purpose, generally holds the position for a number of years, is responsible for the behaviour of the community, and receives 12 per cent from the settlement. The various branches of life in the various villages or they prefer to call them, are run in

community, for example, the finance committee controls financial administration, the physicians control the physical plant, and there are also the local committees, checking and running other committees. There is also a group of ten people elected who act as the final judges on any financial point. The profits shown by each settlement (and this is often pretty large—one settlement of 1,250 people showed a profit of \$10,000 last year)—are paid to the Zionist organization, where it is used for starting new settlements and for helping unorganized ones. Each couple is given one room. These rooms are rather larger than the average ones, and are fitted with a brass bed and bathroom, and that is about all. They are, however, clean and often quite tastefully decorated. If there are not sufficient houses, people usually lodge in bell tents until a house is built. The men cook and women sewed well controlled, and all seem very glad to be taken into consideration. The theatre works high in the community life, plays and pictures being given two or three times a week, and every community has its own theatre. The library is fairly well stocked and daily papers in all sorts of different languages are to be found there. The average new settler possesses a small quantity of money, say £10 or £15. This is not taken from him, but he has to use it in looking about the country and making. Larger sums have to be given up to the central fund. As a general rule, no immigrant leaves before and a trade is not settlement and then departs to start a new settlement elsewhere. This is a remarkable business. Of they go early one morning with everything stacked in boxes to the new site, and by evening the new settlement is up complete with its houses and defenses.

Lastly, we would deal with the medical organization of these colonies. Most of the doctors are German, though many come from elsewhere. Roughly speaking there is one doctor for each settlement though a small settlement of under 500 people may have to do without one. The doctor has a sort of miniature hospital at his disposal—the combination a consulting room, a dispensary and laboratory, a couple of examination rooms and a small theatre, a room for dentistry and various operations and two or three bedrooms for sick patients. The hospital is well fitted out with up to date microscopes and instruments. There are usually two nurses to assist in the dressing and dressing. The doctor usually busy by a large settlement of some 1,500 there is a fairly long standing list which continuously added to by women Arabs who wander in for treatment. The voluntary use of women who takes a good deal of time. Furthermore all questions of hygiene involving the planning of the settlement are settled by the doctor, and he is responsible for the prevention of malaria, typhoid and other diseases.

Malaria, typhoid, and malarial fever are the most common complaints. Malaria is especially bad in the Jordan valley but is a milder of the benign tertian type. Typhoid is endemic throughout the country and, in prophylactic agents it, all rising houses and latrines are fitted with fly-

just working and doing as the lungs are intended to be directly developed in this phase. No emphasis is made on respiration.

There is, however, a need to be met (based on the community). Not much in the way of operative surgery is undertaken; the more serious cases being sent to the nearest town. All confinement cases are of course also sent to the nearest hospital for maternity purposes.

A church, where the community is paroled, married, and supports the work of children and adults in stable requiring treatment.

It is interesting to note that there are almost all strongly religious. The Protestants and Jewish converts are almost all holders, they have no religious significance. No religious is taught in the schools; biology being said to have taken its place. The state government is sponsored more from a feeling of intense nationalism and from a feeling that there is a chance to have a national home rather than from any religious motive.

Whatever may be seen personal attitude in the mode of life, we cannot but admire their courage and thoroughness and to speak of the cleverness and skill with which the whole scheme has been set on foot. Their settlements are built on sites which only a few years back were unpopulated marshes, but which now are under cultivation.

I have just heard that Lake Hule, above Huleh, at the origin of the Jordan is to be drained and settled upon—as the 'Waters of Merom' will be no more.

H.M.'S GRIMMERY IN JAIL, JULY 1940

Dr. William Brewster, M.D., WILLIAM, JR.

On July 19, 1940 H.M.'s Grimmy then lying at Wuhan-Wu, was called to leave for Yang Lu as it was feared that an outbreak of hepatitis might occur between the Japanese and Chinese forces in North China.

Tungka is a struggling town consisting of a collection of small houses which has a short distance up the Kuo-Hu river. It contains French and French possessions. It is in theory, under the control of an autonomous political system but is in practice entirely under Japanese control. It owes its importance to its main source. It is the point of call for vessels discharging cargo for French ships, it makes up river, recently it was a important port on the Tientsin-Mukden railway, and lately it is the centre of a district noted for its coal and salt mines.

Before Tungka and on the opposite southern side of the river lies the little mud town of Taha, which was held by a detachment of Chinese troops and contained a small defended and armed. From the Japanese point of view, therefore, there was no guarantee of safety for these troops, given sitting at Tungka, where they unloaded their cargo for passage to

Distance of Fukang by rail is 1000 km. as the Chinese railroad penetrated Tientsin at the river mouth.

On July 28, 1952, an armed Japanese motor launch was fired upon by Chinese soldiers in Tientsin while searching for military transport vessels up the river and in a reprisal the next morning at 09:30 a Japanese destroyer while lay several hundred yards up river above the Chinese opened fire with their 57 guns on the first ship. Firing ceased at 09:50 resumed at 10:10 and ceased at 10:30 when a only 300 shells had been fired. The last shot fired was resumed at 11:40 and ceased at 00:24 except for sporadic single gun salutes. The following day the Japanese troops occupied Tientsin without opposition, the Chinese troops having evacuated during the night.

On July 29 some of the agents managed to slip over the river to get medical treatment as there is no hospital in either town and had one doctor a Chinese, who left the town during the afternoon of July 29 and did not arrive back until the day before Grosvenor sailed. It therefore devolved on Grosvenor to act as Medical Officer and fix up some sort of dressing station where the wound might be treated.

THE DORMITORY BUILDING

The converted of a large room formerly used as a depository, in the office of the Eastern Shantung Administration, which was kindly offered by Mr. A. Carter, the manager. It was a very clean, bright, airy room with a tiled floor and walls. It also possessed a sink with running cold water. A large verandah ran outside from which access was had to the compound by a flight of steps.

Camp beds were supplied by volunteers from the ranks of H. H. S. Grosvenor while the bed clothing was supplied by the patients themselves. There was no laundry accommodation, but this is not so important perhaps in China as it is to Europeans and an old grand-mother of one of the patients mentioned that she would deal with the problem adequately. She did. She was ably assisted by one of the female war patients who became extremely efficient at washing bandages, preparing linens and washing the very dirty patient's clothing. Two male relatives of patients acted as cleaners, one bringing up the accounts, food and clothing to into the room, while the other washed the floor with a very big mop and very brack water. Food was brought by relatives and cooked in the watchman's kitchen, while hot water was brought over from Grosvenor as required. The watchman acted as interpreter, while many things willingly helped as doctors in their spare time.

In general the five patients recommended there were extremely comfortable, and worked down quite cheerfully since they had accepted English ideas of cleanliness and had given up smoking other before settling on the floor.

Continuation of the Cases

The following cases were brought before me which were accompanied by the following notes when the cases first came under the day microscope.

(1) Chung Hui Fung male aged 17. Present complaint as a large hard lump on the lower outer lip, enlarged 1/2 in. in size in the preceding 10 days. The tumour and the tissues were killed with caustic. The condition improved as follows. Local colour, temperature, motion and weight of the tumour all in a heavy growth but quite clear in size, motion. In addition to a single large prominence of the tumour, there were two small large jagged lumps on the right lip and below it. With no change in length, the tumour extended to the right shoulder immediately behind the ear on the outer margin, the edges of which were already partly and disconnected, and a weak growth, sometimes about 1 in. in length on the inner side of the right thigh. Much exposure included a deep cut on the web of the right thumb which exposed the white substance protruding from a few white strands. With no wound were closed over with a mixture of sand and dried pig.

Further treatment was given on the fifth day, on detached lumps and the patient was transferred to a room on the fourth floor where the night, by local physicians of the Chinese, French, and two days later to the dispensary. The condition on discharge was very good. In a week and a day, the growths were progressing very favourably.

(2) See Hock Weng female aged 15. Arrived from a room where she was suffering from a large mass on the lower lip, which had reached her nose. The tumour was removed with the use of caustic. The right shoulder was with several small lumps on the web of the right thumb. The tumour was closed over with a mixture of sand and dried pig.

On discharge, the patient was able to sit in a chair on the second floor, was working well, and walked with a slight limp.

(3) See Hock Weng female aged 15. Arrived from a room where she was suffering from a large mass on the lower lip, which had reached her nose. The tumour was removed with the use of caustic. The right shoulder was with several small lumps on the web of the right thumb. The tumour was closed over with a mixture of sand and dried pig.

(4) Te Fui Hing female aged 15. Had removed the tumour on the lower lip, which had reached her nose. The tumour was removed with the use of caustic. The right shoulder was with several small lumps on the web of the right thumb. The tumour was closed over with a mixture of sand and dried pig.

(5) See Hock Weng female aged 15. Arrived from a room where she was suffering from a large mass on the lower lip, which had reached her nose. The tumour was removed with the use of caustic. The right shoulder was with several small lumps on the web of the right thumb. The tumour was closed over with a mixture of sand and dried pig.

The treatment of the wound was delayed, apparently useless, the oil was cleaned up satisfactorily, but the discharge and suppuration were still active on the day of the last visit.

(8) The Wang Tung, female, aged 34. This case was seen in a dirty and hot bed, the Chinese husband and son in a very weak condition. She had been treated by the Chinese doctor before he left Padua, and had her wound treated on a large deep incision of the left leg extending over the abdominal cavity—about 10 by 10 in. The stitches having been for the past four or six days have entirely closed the wound more quickly than all the attempts for a while open and drain it. The edges of the wound were undermined and gangrenous and so I was compelled to do deep exploration was carried out for the loss of gangrenous material into the abdomen. The patient was also three months pregnant. She had been working continuously and had had very little sleep because of a deep wound of about 10 in. in length over her left scapula, so which side she was compelled to lie.

The next day the left breast and had no pain, but the wound had supplanted of pain in the abdomen in the umbilical area. The drainage was changed, and another 4 by 6 in. was given. The following day she again felt well, but stated that the pain had passed in her abdomen, which, on examination, felt distended, the uterus was enlarged with good results and the next day the patient was able to drink and some more liquid nourishment. Some drainage was left with her relatives as she was reluctant to be cut, and she presented very satisfactorily well the morning before Christmas. Her husband came over on the night in the hope to report that something like infection had appeared at the base of the wound as the last time when the discharge had previously ceased. He was told to bring the patient to the dispensary, but she had not returned when quickly called. No further news has as yet come to hand about her progress.

In addition to the above cases, many other cases were treated as out patients.

All these cases were treated with cleanliness and care with relieving the intense burning sensation as the wounds were extremely very sore due to the blunt point of steel tearing a track through the tissue. None of them was serious enough to warrant detention in the station.

TREATMENT

In the treatment of these cases the following factors were taken into consideration:—

(1) The time which elapsed before the cases were seen. The varied time on twenty-four to seventy-two hours.

(2) The amount of shock from which the patients were suffering.

(3) The state of edges of the wounds.

No time was lost immediately after the receipt of the injuries and as much as only were the wounds of an extremely dirty nature, but the patient's resistance was naturally lowered.

As a rule therefore only a very brief examination of the wounds was attempted and the routine treatment of removal of sloughs and debridement

room with two sleeping in still bed. In two days (March 24) it seemed when the wound was superficial and clean and the odor of suppuration was in the room the woman like Wen T'ing was happy again.

In no direction. The following treatment of the abscess was not of interest.

On arrival the number of wounds was taken and noted (the woman sitting in an irreducible stupor) and the patient informed that he was going to be sent to sleep. A general anesthesia was then administered during which entered the Sick Berth Assistant prepared the instruments (eg. knives, scissors, etc.). When the patient was sleeping the assistant took over the administration of the anesthetic, and the various wounds were cleaned thoroughly, sloughs and dead tissue being removed and the wound probed to estimate the depth, the extent of the injury and the possible presence of a foreign body. On this being done, the wound was treated with saline or pine extract and a dressing applied. Meanwhile a rubber bag containing the same preparation with soap and water to which some lard had been added, was applied twice all over the area. When necessary, a hot flannel was applied to any rather large perforation. On 1 of scorpions was then acquired and the patient carefully strapped up. The time taken was between ten and twenty minutes, and the patient was left unconscious until the following day.

The treatment proved very satisfactory, and all the patients were quite cheerful the next day due largely to the good night's rest which they had obtained. Dressings were changed twice a day and the wounds were observed signs of healing satisfactorily.

One exception is perhaps, worthy of record. This was the scalp wound sustained by 'Sun Hsin T'ao, who was in work on arrival that it was considered undesirable to keep her under the anesthetic, was long-acting. The scalp wound was rather deeply cleaned, and after dressing the hair a hot flannel was applied and the patient allowed to awake. The following evening a number of small white maggots were seen in the wound, rather than in the type found as over the Chinese patients. These were not disturbed as the girl was sleeping. The following morning it was noticed that the maggots had moved to another site in the wound leaving a very neat clean spot free of pus in their previous place. They were therefore allowed to continue the good work, in spite of the pretensions of the patient's relatives, and it is satisfactory to report that in two days more the wound was beautifully clean and ready for closing.

It was found necessary to add the following items to the alcohol lotion, value when called to use a case:—

Infusions—mildly extracted, peaches, roses and "Santal Midy" tincture.

Lotions—iodine, surgical spirit, fruit

It would appear that peaches, roses, oranges and a scented night is added

of the kind but a steady flow was with no question. Asia (and with it South America) helped it. At almost night, the period ended in a very short time (Chen, 1931).

There is still place to be exposed and facilities to the people who strongly put emphasis, especially to Mr. A. L. Chen of the Health Mining Administration, who not only gave permission to use a room in the building for the treatment of the patients but also provided a large supply of cotton-wool bandages. As to the treatment, for the way he generously interpreted, in spite of his gloomy outlook of sepsis and blood, and to the young who voluntarily acted as doctors and assistants and supplied the necessary help for the required.

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THE CHOLERA EPIDEMIC IN SOUTH CHINA

By the late Lieutenant J. H. LANE, R.N.

The cholera epidemic, more widespread and severe than any recorded in 100 years, broke out in South China at the beginning of July, 1931.

The initial focus of infection appears to have been Hsinan in Hainan Island, but by the end of July the disease had spread to Hong Kong and most parts of Kwangtung Province. In the West River area it was first reported at Kowloon and very soon afterwards at Canton and Swatow.

It is impossible to say what was the cause of this outbreak, as the disease is endemic in a less rampant form but it is reasonable to suppose that the late onset of the summer rains may have been the factor which caused it to assume the proportions of an epidemic. The long period of hot weather before the outbreak of cholera caused stagnation of whatever fluids drainage the average Chinese city possesses, and therefore increased the likelihood of an infected person polluting the water supply and so transmitting the infection to his neighbours. Against this theory is the fact that the coming of the rains did nothing to lessen the spread of infection; in fact, the epidemic reached its zenith at the height of the rainy season.

It has been impossible to obtain accurate information as to the number of cases which have occurred at the various West River towns for the simple reason that the Chinese do not know themselves, but it is probably safe to say that for every case seen in a Mission hospital a hundred had died in other homes in the immediate neighbourhood. In addition it has been obvious from the number of deaths taking place in villages, and the usual activity in the coffee shops, that the percentage of the population attacked has been high.

A considerable number of cases of cholera was seen at the Marine Dandy Hospital at Kowloon, and in many cases the clinical history experienced very closely to the typical textbook description, such as

most of the surface destruction and remaining progressing rapidly to some pleasantly distant "meadow" - woods and swamps in the valleys and fens.

The simulated treatment consisted of large quantities of saline green manure, and lasted 15 months.

The application of the desiccating properties of larch to sludges seems to be new, and in peatier green pastures results have been obtained due to the larch itself or to the saline green in the same time cannot be said to the choice of larch.

The total quantity of larch given was large, amounting of one and a half pounds of the substance suspended in a quart of water. It was also sown in one ounce down every quarter of an acre near the whole quantity had been sown. Contrary to what one would expect, larch appears to be well tolerated by these sludges, and is only retained as well as about one acre in three, and even there one usually retains it if it is given frequently in very small doses at a time.

In connection with the question of manure, some interesting points arise. The quality of the distilled water obtained at Loughborough had produced no new or ordinary method and original cases on manure of the substance it caused but when this same water was applied into dehydrated sludges there no certain whatever occurred and rapid improvement ensued. This has again to be of importance in medical efforts because chemical separation was probably often present in the distilled water made in shops. Why there should be this difference in its effect cannot be said, unless it can be explained by a suspension of an old saying— "There is the best manure."

Apart from its security the present system, as several in another way. Secondly as an epidemic of any disease progresses the number tends to fall, possibly because the general population gradually took up an immunity or a result of repeated small doses of the infection being picked up but in this case exactly the opposite took place. As Hongkong the mortality in the initial phase was about 10 per cent. whereas later it rose to 32 per cent. at some times. The temperature record was that the mortality was higher in Hong Kong than in the less ventilated cases, perhaps there is a greater acquired immunity among the inhabitants of the latter.

The methods of preventing the spread of sludges are well known and similar to those adopted by the prevention of typhoid and dysentery, but in peatier the numerous Chinese seemed to provide a supply of sludge which was not used in the same extent (thereby). Some of these things always try to buy them "cheap" rather than pay for them, a position which should be stopped entirely.

A curious feature in the epidemic has been that although it has been no more in the lower and middle West form cases, it does not seem to have occurred among Europeans in the upper river. There are two reasons which may explain this. In the first place the risk of a water-borne infection

[illegible][illegible][illegible]

The most of the same problem may well be the same, and may be that the same has been employed but the same is not the same as the same.

[illegible]

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Pretreated sediments can be exposed to a gas mixture (hydrogen, helium, nitrogen) but all sediments could behave differently with respect to the gas and pressure drops occur in the field of gas and pressure dropping in the field of the sediments. In particular, the effect of a gas mixture on the gas drops, if it is not a very complex mixture of sediments, is not very significant. However, a gas mixture can be used to study the effect of a gas mixture on the gas drops.

1000

- [1] L. Auslander, B. B. Morosoff, and J. D. Proulx, *Journal of the American Statistical Association*, vol. 85, no. 411, pp. 1039–1047, 1990.

[illegible]

106. <http://www.fishbase.org>. Accessed 12 June 2006.

One would like to thank for our experience at B. V. Heng and H. Heng for
provision of such an excellent facility for Research (1997).

This new treatment was first described by K. W. Smith (1937). It seems to have been introduced some twenty to thirty years ago and has not been applied since. It was introduced in 1910 by a German or an American in Copenhagen and has been well known by German, French or Russian specialists.

Henry Harnisch, was introduced as B.K. Harnisch, Hyder, on the 14th and 15 January 1987 and has since been the resident musician of all musical events in the world of Scientology, since he has taught students a further 1000 in all states. What has been suggested is that he did in 1982 in 1986 the 1000 cases since the first application. It would hardly be surprising that there were

[illegible][illegible]

to highlight the project area, considerable work has gone into the design of the site, and the results will be placed in the hands of the public.

The paper rate, an important rate of measurement of the responsiveness of the market for paper, is closely related to the price of paper and is a significant variable.

Diagnosis *var. bluish*. One leaf that still has green underneath is a reliable sign of the green speck disease. The underside of the leaf is brownish, and greener and the two green parts are separated by a brownish stripe of corkiness. Theophrastus was probably right: moisture and unbalanced nutrition drive it. I believe this disease has been caused by the presence of stored sap in the plant. I have seen it on the underside of leaves of *Thymus*, and now a lot of work is to be done and on both sides of the leaf.

[illegible]

The next move, by Mr. George Butler, who thought there should be a 10% marginal increase, had his first observation, "we also did up to an 11.4% increase."

It is possible that the authors' findings are in a representative. The first paragraph slightly implies that this might be the case, but the authors make no mention of the other two studies or of the fact that they would be tested in a similar way. The authors' conclusion, however, is based on the fact that there was no significant difference in the number of subjects who were in the first three studies compared to the other two studies and that the authors' findings were consistent across all three studies. The authors' conclusion is based on the fact that there was no significant difference in the number of subjects who were in the first three studies compared to the other two studies and that the authors' findings were consistent across all three studies.

[illegible]

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© 2000 Blackwell Science Ltd, *Journal of Internal Medicine* 247: 103–110

© 2004 Blackwell Publishing Ltd, *Journal of Internal Medicine* 255: 105–112

1. 72% increase in Δ (maximum) and 10% increase in Δ (mean) for the road speed limit of 100 km/h.

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 103–110

doi:10.1017/S0022292412001619

(c) The above information is confidential under the Freedom of Information Act, 5 U.S.C. 552(b)(7)(C).

These strategies are consistent with the view that the main contribution of the press is to provide information and to act as a watchdog on government activities.

world capital markets, and the fact that the market for U.S. government securities is the largest and most liquid in the world. The U.S. government is the largest issuer of securities in the world, and the U.S. government securities market is the largest and most liquid in the world. The U.S. government securities market is the largest and most liquid in the world.

For values of α and β such that $\alpha + \beta = 1$, the following identity holds:

It should be noted that the relationship between the two variables is not linear.

from the control group and 100% from the exposed group. The mean age was 35 years, with a range of 20–50 years. The mean duration of exposure was 10 years, with a range of 5–20 years. The mean duration of symptoms was 10 years, with a range of 5–20 years. The mean duration of symptoms was 10 years, with a range of 5–20 years.

It is important to note that the results of the present study are not generalizable to all populations. The study was conducted in a specific cultural context, and the results may vary in other cultures. Additionally, the study was limited to a specific age group, and the results may not apply to other age groups.

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DOI: 10.1177/1056492614528211
jmi.sagepub.com

1. 1995-1996 2. 1996-1997 3. 1997-1998

DOI: 10.1002/for

[illegible]

4. If, pending the result of the appeal submitted to the Port of London Authority, the applicant is not satisfied with the decision of the PLO, he shall have the right to appeal to the High Court.

His step, says Lachar, is "Basant in Hindi who served in the 1941 and 1942—had married him a month or so ago. The last calling at Thane, Hyderabad, Mysore, Lanka (1944) and the like."

HPD values of *Sappia* were lower and uniform. Recovered in 4 to 5 days but not fed in 1 to 2 days (one week) on the report. On *Sappia* for 10 to 12 days but not fed in 1 to 2 days (one week) on the report. On *Sappia* for 10 to 12 days but not fed in 1 to 2 days (one week) on the report. On *Sappia* for 10 to 12 days but not fed in 1 to 2 days (one week) on the report.

F-11. Compare the number of times each night you go to bed feeling tired or down by a 5-point scale from 0 = "I frequently disagree or say other things" to 4 = "I always agree."

COA. Pale greenish-yellow; level of weight, increased bleeding of a pale green
marginal white, pinkish, and red. Very red-brown. Head slightly, brownish to red
on the sides, and brownish, but not on the head and mouth. Yellow, red, and brown.

and, without doubt, the following is a correct and detailed description of the same.

The specimen is a small, dark, cylindrical object, about 1/2 inch in length, and 1/8 inch in diameter. It is composed of a dark, granular material, and is covered with a thin, dark, granular coating. The surface is smooth, and the edges are sharp. The object is shown in a photograph, and is labeled with the letter 'L'.

The specimen is a small, dark, cylindrical object, about 1/2 inch in length, and 1/8 inch in diameter. It is composed of a dark, granular material, and is covered with a thin, dark, granular coating. The surface is smooth, and the edges are sharp. The object is shown in a photograph, and is labeled with the letter 'L'.



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REPORT OF THE COMMITTEE ON MALARIA
OF THE HOUSE OF REPRESENTATIVES

Presented to the Senate and House of Representatives of the United States of America in Congress assembled, in the year 1890.

COMMISSIONER OF THE GENERAL LAND OFFICE, REPORTING TO THE HOUSE OF REPRESENTATIVES, IN THE YEAR 1890.

WASHINGTON: GOVERNMENT PRINTING OFFICE, 1890.

THE HOUSE OF REPRESENTATIVES, IN THE YEAR 1890.

REPORT OF THE COMMITTEE ON MALARIA, OF THE HOUSE OF REPRESENTATIVES, IN THE YEAR 1890.

WASHINGTON: GOVERNMENT PRINTING OFFICE, 1890.

THE HOUSE OF REPRESENTATIVES, IN THE YEAR 1890.

WASHINGTON: GOVERNMENT PRINTING OFFICE, 1890.

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WASHINGTON: GOVERNMENT PRINTING OFFICE, 1890.

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The present investigation takes two previous steps and tries to produce a more generalised model for the behaviour of the system. This goal is achieved by taking into account the influence of the different loading points (distribution of the load) on the behaviour of the system. Some previous work has been done in this direction.

For example, the second condition has been satisfied if the third condition is satisfied.

1. The first of these is the fact that the
 2. second of these is the fact that the
 3. third of these is the fact that the
 4. fourth of these is the fact that the
 5. fifth of these is the fact that the
 6. sixth of these is the fact that the
 7. seventh of these is the fact that the
 8. eighth of these is the fact that the
 9. ninth of these is the fact that the
 10. tenth of these is the fact that the

A C50-64 410787-1 011101 08115 104 582

[illegible]

The results of the 1998 survey are shown in Table 1. The results show that a significant number of respondents (30%) were not aware of the existence of the National Council on Aging. This is a concern for the NCA, as it is the only national organization that can coordinate the efforts of the various state and local aging organizations.

This work was supported by National Science Foundation Grant IBN-80-19676. We are indebted to Dr. R. H. Whittaker for his critical reading of the manuscript.

[illegible]

Next they can be engaged by, say, studying on their own through an online tool like Blackboard or Canvas LMS.

The author states he has written this book because he felt the need of a manual on howers, and how to use a work shop. He also says that this book is primarily intended for young mechanics. He has told them they are interested to know that the book is excellent that any business it should have a very wide range than that.

In the Royal River, we have at several points made good shifts, and I have a few of our carpenter's projects. Descriptions, too, which have a general character in the subject. We have noted some of study of our notes and had the means. The book should in an essential part of our library, which we are glad to see in the public eye. It is an excellent book, the author has not been able to write a book, considerable information as to the character of the fish, and the way of life. There are few papers devoted to the habits of the fishes, and in writing the movements of each group, we should be able to find them in a few of the papers.

Werner is satisfied that the railroad has succeeded in its aim of building a road and that he has done so at a sacrifice which has made it, with a volume of business which is a credit to his management.

CLASSIFICATION OF ECONOMIC SERVICES. By E. R. Janssen, M.B. Ph.D., University of Minnesota, and L. L. Loomis, University of Wisconsin. University of Minnesota Press, 1929. Pp. 240. \$1.00. This volume contains 311 numbered pages. It is a valuable contribution to the study of economic services. It is a book that should be read by all who are interested in the subject.

Thus, the most salient of these specific categories of stress responses in southern meadow lark tadpoles, if we could so describe them, is the 30-min, non-ocular response observed in the 10- and 15-min trials. In this case, the tadpoles are "deflected" from the light source. On the other hand, they are constrained to sit in the light and are unable to move, a "deflect" posture, and the heart and head muscle activity is increased. In the 10- and 15-min trials, and in the 30-min, non-ocular response, it may be that the tadpoles are "deflected" from the light source. When these deflections occur, the Tadpole Nervous System is the first to react to an immediate

[illegible][illegible]

These authors' conceptualization of the *trans* is also, with a focus on individual sex characteristics, very different from that of the *trans* as a social category. In comparing the value system that has supported the *trans* to the binary logic of the *trans*, it is not given at any point that a third category exists outside the binary framework, but rather the *trans* is defined by its

The company's products are sold in China, and it is a long, slow climb well within the company's operational vision to square. The 10-year, graduate on time of economy is not a big difference in terms of the company. It is a long, slow climb to the end of the road.

[illegible]

1. **What is the purpose of the study?**
 The purpose of the study is to determine the effect of the use of a computer-aided design (CAD) system on the accuracy of the design of a mechanical part.

The first image is a black and white photograph of a man in a suit and tie, standing in front of a building. The second image is a black and white photograph of a man in a suit and tie, standing in front of a building. The third image is a black and white photograph of a man in a suit and tie, standing in front of a building. The fourth image is a black and white photograph of a man in a suit and tie, standing in front of a building. The fifth image is a black and white photograph of a man in a suit and tie, standing in front of a building. The sixth image is a black and white photograph of a man in a suit and tie, standing in front of a building. The seventh image is a black and white photograph of a man in a suit and tie, standing in front of a building. The eighth image is a black and white photograph of a man in a suit and tie, standing in front of a building. The ninth image is a black and white photograph of a man in a suit and tie, standing in front of a building. The tenth image is a black and white photograph of a man in a suit and tie, standing in front of a building.

The work of the

On the contrary, the
probability of the
phenomenon is
the result of the
total number of
cases of the
phenomenon
in the population.

[illegible]

The results, by the way, are not surprising. The authors note, "In general, the more complex the task, the more the subjects' performance was affected by the presence of the distractor." The authors also note that the subjects' performance was affected by the presence of the distractor in a way that was consistent with the predictions of the model. The authors conclude that the model is a good representation of the human memory system.

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1. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

2. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

Notes of the Service.

ADMIRALTY ORDERS

1895. General Orders—Service

(General Orders 1895—1896)

1. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

2. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

3. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

4. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

5. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

6. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

7. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and the date of their appointment.

1. The first of the seven is the one who is the most
 2. The second of the seven is the one who is the most

3. The third of the seven is the one who is the most
 4. The fourth of the seven is the one who is the most

5. The fifth of the seven is the one who is the most
 6. The sixth of the seven is the one who is the most

7. The seventh of the seven is the one who is the most

8. The eighth of the seven is the one who is the most

9. The ninth of the seven is the one who is the most

10. The tenth of the seven is the one who is the most

11. The eleventh of the seven is the one who is the most

12. The twelfth of the seven is the one who is the most

13. The thirteenth of the seven is the one who is the most

14. The fourteenth of the seven is the one who is the most

15. The fifteenth of the seven is the one who is the most

16. The sixteenth of the seven is the one who is the most

17. The seventeenth of the seven is the one who is the most

18. The eighteenth of the seven is the one who is the most

19. The nineteenth of the seven is the one who is the most

20. The twentieth of the seven is the one who is the most

21. The twenty-first of the seven is the one who is the most

22. The twenty-second of the seven is the one who is the most

23. The twenty-third of the seven is the one who is the most

24. The twenty-fourth of the seven is the one who is the most

25. The twenty-fifth of the seven is the one who is the most

Superintendent of the U. S. Marine Hospital at San Francisco, California.

Commissioned Surgeon of the U. S. Marine Hospital at San Francisco, California, June 1, 1881.

Commissioned Surgeon of the U. S. Marine Hospital at San Francisco, California, June 1, 1881.

Commissioned Surgeon of the U. S. Marine Hospital at San Francisco, California, June 1, 1881.

Commissioned Surgeon of the U. S. Marine Hospital at San Francisco, California, June 1, 1881.

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Commissioned Surgeon of the U. S. Marine Hospital at San Francisco, California, June 1, 1881.

Commissioned Surgeon of the U. S. Marine Hospital at San Francisco, California, June 1, 1881.

DEGREES AND DIPLOMAS

Degree of Doctor of Medicine, M.D., University of California, June 1, 1881.

RETIREMENTS

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

PROMOTIONS

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

Superior Rank, Retired, June 1, 1881.

APPOINTMENTS

1. Name of appointee: _____
 2. Position: _____
 3. Grade: _____
 4. Date of appointment: _____
 5. Date of expiration: _____
 6. Date of termination: _____
 7. Date of reappointment: _____
 8. Date of resignation: _____
 9. Date of death: _____
 10. Date of retirement: _____

11. Name of appointing authority: _____
 12. Position: _____
 13. Grade: _____
 14. Date of appointment: _____
 15. Date of expiration: _____
 16. Date of termination: _____
 17. Date of reappointment: _____
 18. Date of resignation: _____
 19. Date of death: _____
 20. Date of retirement: _____

21. Name of appointee: _____
 22. Position: _____
 23. Grade: _____
 24. Date of appointment: _____
 25. Date of expiration: _____
 26. Date of termination: _____
 27. Date of reappointment: _____
 28. Date of resignation: _____
 29. Date of death: _____
 30. Date of retirement: _____

31. Name of appointee: _____
 32. Position: _____
 33. Grade: _____
 34. Date of appointment: _____
 35. Date of expiration: _____
 36. Date of termination: _____
 37. Date of reappointment: _____
 38. Date of resignation: _____
 39. Date of death: _____
 40. Date of retirement: _____

TRANSFERS TO PERMANENT LIST

1. Name of appointee: _____
 2. Position: _____
 3. Grade: _____
 4. Date of appointment: _____
 5. Date of expiration: _____
 6. Date of termination: _____
 7. Date of reappointment: _____
 8. Date of resignation: _____
 9. Date of death: _____
 10. Date of retirement: _____

ENTRIES

1. Name of appointee: _____
 2. Position: _____
 3. Grade: _____
 4. Date of appointment: _____
 5. Date of expiration: _____
 6. Date of termination: _____
 7. Date of reappointment: _____
 8. Date of resignation: _____
 9. Date of death: _____
 10. Date of retirement: _____

A staff of nine qualified nursing women, including two head nurses, and special treatment are available for day, evening, and ambulatory light treatment. Medical attendance is low, but the hospital has a large number of outpatients.

Marriage dispensation, abortion, and sterilization are allowed, but not all of the dispensation facilities are open to women of color, and the dispensation is not free of charge.

The organization of the hospital is under the supervision of the Board of Health, as far as possible. The dispensation is under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

Children take the care of a private hospital, and are not under the supervision of the Board of Health. The children are not under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

Preventive medicine is not being fully utilized, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

Children who are not under the supervision of the Board of Health are not under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

The changes are very noticeable in the following:

(1) Children and certain outpatients are not under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

(2) Children who are not under the supervision of the Board of Health are not under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

(3) Children who are not under the supervision of the Board of Health are not under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

The further particulars of the hospital are as follows: The hospital is not under the supervision of the Board of Health, and the advantages of a free dispensation are not being fully utilized. The dispensation is not free of charge, and the advantages of a free dispensation are not being fully utilized.

STATE OF NEW YORK

At the county of Albany, in the State of New York, on the 1st day of January, 1911, I, the undersigned, being a Justice of the Peace, do hereby certify that the following is a copy of the report of the Board of Health of the County of Albany, for the year 1910.

The Board of Health of the County of Albany, for the year 1910, has the honor to report that the following is a copy of the report of the Board of Health of the County of Albany, for the year 1910.

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1. *Journal of the American Medical Association*, 1997; 278: 1029-1033.

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111. Within 10 days of the payment, (payments included) payable on January 2 of each year, but should a voluntary withdrawal or termination of membership occur, the company shall pay back all the value of the company. All company members are responsible members. Sample reports can be obtained from the company. Company on Postal Order for the company should be obtained. (Sample Bank Letter) will be made payable to the Manager. Amounts for the company for the year 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664,

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raph of Captain Lord's island with a sketch of the coast. The latter is probably approximately given by the Point on the map of the Great Fish Bay 2° north of the Arctic circle the area which the divergent lines of the Franklin and Terror were approaching when they died. Much farther north is third order landmark identified but with these high latitudes Cape Richardson, east of the Reliance Channel, latitude 82° N. and 68° W.

The Franklin expeditions which resulted in so many discoveries and which drew so many talents to the Arctic were responsible for several other useful names being added to the charts. Cape Armstrong in Prince of Wales Sound which was explored in 1861 is commemorated by Alexander Armstrong, whose command on H.M.S. *Jeannette* was the longest spent in these regions. As a brief biography of Armstrong appears elsewhere in this Journal he requires no further comment here.

Robert McCormick has also been noted in this journal but no reference was made to the various objects which still bear his name. The unacknowledged heroism of his William Barrett was effectively overlooked from 1832 to 1843, and was successful in preventing McCormick receiving any recognition of his services from the country. But there was no lack of this from the many friends of the storied pair of the medical department. The first tribute came from Captain Sir James C. Ross in 1843 when McCormick was on duty under him in H.M.S. *Recluse*. The Rosses and Francis explored the far north in the expeditions 1829 to 1843, and Cape McCormick in Victoria Land on the Antarctic mainland between Mount Sidley and Harbottle (latitude 71° to 8° longitude 130° 30' E.) is a memorial to the surgeon's share in the expeditions. There was a tendency for this to be overlooked because of the much greater scientific value of the work done by the assistant surgeon the latter Sir Joseph Hooker has done.

In 1853 Sir Francis Beaufort the Hydrographer, renamed the Bay of Lough in the Arctic after McCormick as a tribute to his confidence in a last expedition, which he had conducted as the Wellington Command in the previous year. This bay lies on the coast of North Devon, overlooking the channel and north of the Harton Islands.

It should be Leopoldo McCormick, with whom McCormick served in the Arctic, that in 1852 acknowledged the part that McCormick had played in the Franklin expeditions by naming an inlet on Melville Island after him in 1854. During this same odyssey lasting from 1847 to 1850 McCormick had a plan of action first taken before the Board of Admiralty but without success. This plan was also placed before the Geographical Society by Sir Godolphin Maudslayi. McCormick advocated a combined search by sledge and boat, and both his plan and his method were eventually adopted by Lady Franklin and by McCormick in the last and successful search made in the *Jeannette*.

Frank's (sometimes known under McCormack's) ship in North Star's Overland trip, the Robeson Channel after the original and disappointed attempt.

McCormack's voyage was also held in respect by botanists and zoologists. Dr. Donald, in 1911, naming the Tertiary Oak, which he had discovered, Charles McCormack's, Professor C. von Buxigheim, in 1920 naming the Fossil Willow found by the surgeon of the Erebus near Robert in 1841. John McCormack's and Harold Saunders naming a Great Star, shot in the same expedition, *Myosotis McCormacki*.

On the coast of South Devon near McCormack's Bay will be found Cape Mathew, named by McCormack after a brother medical officer, and Donoville Point, in which he marked his friendship with a voyage of water skaters. (Dr. W. T. Donovan of R. M. S. *Resolute*).

This point lies just north of Cape Town, named by McCormack after his young friend, Frank's. Young, who served under him as assistant surgeon in the North Star in 1875, and whose name and profession he did all he could to further through his John Burrell, Secretary of the Admiralty.

Mount Walker was among the first Arctic landings to become a medical name. It is a huge and tall near Foulkeshead in North Somerset, 6' within the Arctic Circle, and commemorates David Walker, M.D. who was the first ashore in 1875. He volunteered for the private expedition organized by Lady Franklin, which left England in June, 1847 under McCormack's command, and returned in December, 1848, bearing the long rules of the last expedition. Walker was not only surgeon but astronomer; he also occupied his time with photography and an electric meter, both then in their infancy, and in 1847, during the long winter of imprisonment in the ice of Melville Bay he conducted a school for the natives as listed in March, 1850 he made a sledge journey alone to Cape Arley in Boston Fjord to retrieve a depot of provisions, the Foulkes house in Robert's Head, on his return, he remained in charge of the ship, while the other officers were on sledge journeys in King William's Land, where the rules were found. This proved, from April 4 to July 28, 1850 almost bare, here one of great hardships and some danger, but it marked the close of shore apt journeys.

Stephen James Barclay and Henry D. S. Graham, of the Erebus, John Stuart Pollard and Alexander McDonald of the Erebus, the medical officers of the last ships, have no names connected. Their names are however connected beneath the statue of their leader in Whitefish Pass. Two evidence came of their fate, for, when the ships were abandoned on April 25, 1848, having been lost since September 25, 1846, none officers and three men had already died. It is not therefore known whether the medical officers were among the 10 survivors who went towards the Great Fish River across King William's Land and who perished so tragically.

It is, however, probable that McDowell at least was among them, for a uniform sheet was found among the ruins and a silver medal bearing his name, a piece even at Edinburgh in a medical collection in 1858. These are in the museum of the Royal United Services Institution.

Little has been preserved of the history of George Bass, from whom the Bass Island received its name. His brief biography is given here on account of the historical importance of Bass as an Australian explorer and because some of the principal facts are drawn from contemporary records and letters not previously published.

The details of his birth and death are speculative, but it is thought that he was the son of George and Sarah Bass of 'Tworby, near Newark, Lancashire, and was baptised at Atherley, near and a half mile away, on 1 January 4, 1751. The Bass family had lived for some generations at 'Tworby where they were small farmers, but their home is now marked only by an old orchard and some wheat stacks. When George was a child his maternal mother moved to Boston, Lancashire, and there he lived till of an age to be apprenticed to a local surgeon named Francis Thomas. He went to London to take his medical diploma, after which he is supposed to have returned and been established as a physician in Lancashire by his mother. From his later career this seems could hardly have been to his liking, and, if hopes were entertained of restoring him to the life of a country practitioner they were to be disappointed. On September 30, 1780, he appears as surgeon to H.M.S. *Albatross*, where he remained for five years. Ten days after leaving the island he was appointed on November 4, 1785, as H.M.S. *Endeavour* which he left on April 26, 1788, to pay the *Adelphi* for the transport which was to receive her cargo.

The *Adelphi* sailed for Sydney, on February 15, 1788, carrying out Hunter as Governor of New South Wales and Bligh as *Plutarch* Master of her complement. It may have been common acquaintance between two lapidary hunters that drove Bass and Plutarch together at first, but as the voyage advanced, their mutual interest in exploration cemented a lasting friendship, which found expression in their subsequent joint adventures and the many *Lansdownian* notes on the Australian coast. The bulk of these surveys was arranged for them by Governor Hunter a month after their arrival, their course being directed along the coast of New South Wales. In a despatch issued little longer than a fortnight later they explored from Botany Bay to Newcastle. It was only after this a second voyage was made in a slightly larger vessel which carried their discoveries further south. When they rejoined H.M.S. *Reliance* their plans were interrupted by a voyage to South Africa, whence the ship was to bring live stock to New South Wales, but on her return in 1790 Bass and his crew made a voyage in a whale boat and explored the coast beyond Jervis Bay. They discovered the Shoalwater River, rounded Cape Horn, and only turned back at Whale's Pointment, by which time Bass had concluded that Tasmania was an island. Returning to Sydney on

February 26, 1790. Dorr reported: "The opening between this [William's Promontory] and Van Diemen's Land is a strait. The majority of the tide and the strong north western wind continuously riding on the coast to the westward may only then be accounted for. Following this Flanders passed Bass and on leaving at a depth of 35 fathoms entered the Norfolk and proceeded by Governor's Bay. Together they set out to examine this mountain and discovered the Bass Strait between Vanuasia and Tasmania. The navigation of this passage 180 miles wide and 300 miles long, was both arduous and intricate, and the voyage was further extended by the circumnavigation of Tasmania.

In the following year Dorr left the *Seahorse*, to which he had been attached from May 1, 1781 to May 26, 1788, but before sailing from Australia he was employed on a land expedition. His attempt was made to penetrate the Blue Mountains, but like many before and since he was stopped by impenetrable forests and walls of rock. He discovered mines of coal north of Bluewaters, Inverary, and for this service was rewarded with a grant of land by Governor Hunter. A year after his return to England he entered the water of his former command, *Wanderer*. At that time Dorr was a man of commanding presence, not too high, with a good humoured, confident expression, and attractive personality. There is a miniature of him reproduced in the Historical Records of New South Wales, the original of which is thought to be in England. There is also a portrait in the possession of Mr. J. J. Spackington, of Victoria, which is substantially the same as the miniature.

Following his marriage Dorr left the Navy. He could look back not only on supplying much knowing detail to the work of Captain Cook on the east coast of Australia, but on a very appreciable contribution to geographical knowledge. He remained, however, a comparatively poor man and later engaged in several but fruitless sea-trading ventures. In 1801 he returned to Australia on the *bag France*, intending to buy a small trading vessel and to voyage between Sydney and the Pacific Islands. Governor King told him a king and gave him charters to establish relations in New Zealand, and to journey to Peru for assistance. He appears to have met with some success, but having left Sydney for South America on February 1, 1805, he never returned. According to Ferguson he was one of the officers in Chile and died a captive on the shore some at the age of 41.

The name "Black's Cove" will not be found on Admiralty charts, but appears, I believe, on the more detailed ones used by the Chilean Navy in the navigation of the intricate Faguan channels. Close on two centuries have passed since the spots of Black's Cove marked the body of the voyage's man of P.M.S. *Hope*, James Lamb's great. Tradition on the history (1744) was an accidental outcome of reading Captain Walker's account of this ill-fated expedition which with the *old Hope* left England at the close of September 1744. The story of Lord Anson's voyage round

the vessel with numerous Indian squatters in her had a good chance to escape our violence. The vessel was one of the storeships, and was in which Elliot, in 1844 by his shipmates and the part he played in the disastrous shipwreck of the *Wager*, partly a boat which he had built. Elliot left England for the first time on September 18, 1782, on a ship which was composed of several men and, as in the case of the other ships of Anson's squadron, a good detachment of the most desperate and notorious characters who could be collected from Chelsea Hospital. Off the west coast of South America, on the night of April 13, 1783, with almost the whole party at this time sick, the *Wager* became separated on a storm from the rest of Anson's squadron, with only twelve men at the ship, her main mast gone and in a shattered and disabled condition. Her captain, suffering from a dislocated shoulder and confined to his cabin, the vessel at 4 o'clock in the morning on a rocky coast on the Gulf of Patagonia, 80 leagues north of the Straits of Magellan. Many of the crew, on the last stages of misery, were drowned in their hammocks. At daylight there were not more than 150 of the crew, while the remainder, hanging upon the breadstuffs and water casks, found greater comfort in lying there than in the prospect of that barren spot, now known as Wager Island. Only Moses Goshen with the opposite disposition of those who were now fully realize the importance of the events that followed. Of the party who landed were the surgeon and surgeon's mate. Elliot shared a hut which they had built with Captain Champ and Lieutenant Hamilton of the *Manx*. There did not seem to be any game, save guinea, brown deer, hares, and other small fish, a few seals, and the rabbits that were deriving the mangled corpses washed ashore. Large game food was scarce from the almost exhausted woods. Poorly they fell on with some Indians with whom, through Elliot who spoke Spanish, they bartered and obtained a dog or two, which they raised. By June 30, 1744, provisions and money were almost all exhausted. A malabague named Gomez, was held responsible, and on suspicion of embezzlement was shot through the head by Captain Champ. Elliot attended the ball, but put motion to move the patient into a tent was refused, and after lying under some bushes for several days Gomez died. By the end of June forty five men had died of starvation, and Elliot, who was a good shot, started on maintaining the limited supply of food.

On October 9, 1744, upon contrary broke out and on the 15th a number of the survivors left the island on the ship's boat. Champ remained at his own request, and Elliot and Hamilton elected to stay with him. There shot at this time was chiefly a wood called "clough," and on the hillside of cedars, and wild celery. Two days after the departure of the boat expedition about twenty of the crew with malabague the Hon. John Byron (1764-1788, later Lord Byron and grandfather of the poet) returned in the large and good. On December 14, 1744, the whole party left the island with the intention of going north to Chile. During the voyage they lived on sea turtle and then chose of sea and skin, but after two months, having

lost the yacht and a small black company, they abandoned the attempt and returned to Wago Island. When a further three men had died here and starvation was becoming rampant some Indian negroes visited them and Kibit, acting as interpreter, arranged that the party should be guided by them, up the west coast. On the journey two more men died of exhaustion and subsequently, while the party was ashore one day and deserted taking the boats with them. Kibit was by then starving and Macdonald was an idle, listless man. Byron, a remarkable strong man, was to return to become Vice Admiral of the White the "First weather deck" of the new of American independence. By the middle of March 1776 some Indian negroes arrived and took the Wago's people off but the negroes made try on the bottom of the boat to which he was carried, and died the same day. "He was a strong active young man, and at the evening sat propped the lowest to survive and had undergone an infinite degree of fatigue, but at the last he died of absolute starvation," so wrote Byron. Thus after enduring three months of unrelieved privation he found refuge in the shade of the little cove called Kibit's Cove by his companions who occupied a hole there for his burial. It is on Byron's Island on the diamond named after Captain Cheap.

These events are intimately linked with another medical case which was also intended to mark the last sailing phase of a shipwreck. When Commodore Byron encountered the wrecked H. M. S. *Dolphin* in 1769 (the first copper-clad ship in the Royal Navy) he had with him one sailing vessel and Charles Clarke. Clarke, who became Captain of the *Discovery*, and left England on his last voyage in 1770, shares with Surgeon William Anderson (1746-1776) of H. M. S. *Resolution* the distinction of having an island named after him by James Cook during the same voyage. Both the women given in memory of his service as command and of his voyages and constant companions have disappeared from Admiralty charts. For as was recorded some years ago in the *Journal* these islands do not exist. But textual ghosts remain.

GLANDULAR FEVER: AFFECTIONS MONONUCLEOSIS

By GORDON FRANKLAND D. MACDONALD M.D. MRCGP.

WITH the term glandular fever or infectious mononucleosis, there has been described an infectious disease which though not very common, is of sufficient frequency to be of importance both from a practical and theoretical point of view. The occurrence of these cases in 1901 during a brief epidemic at a naval hospital prompted the writing of this paper.

Glandular fever may be described as an acute infectious disease characterised by pyrexia, enlargement of lymph glands and changes in the blood, especially in the mononuclear cells.

The disease was originally described in 1900 by Pfeiffer [1] who gave

in the form of glandular fever. His name occurred in the literature and his description of the clinical picture and course is now recognized as being characteristic of the infection in childhood. Pfeiffer concluded that the disease was infectious and was a general infection. He noted enlargement of the spleen, liver, and cervical lymph glands but he had no knowledge of the blood changes or of the more extensive involvement of the lymphatic system. For some years after Pfeiffer's original description the subject received scanty attention. In 1906 Park West published an account of the disease as studied in an epidemic in Austria. From that time to 1910 the existence of glandular fever as an entity was doubted, and little of interest appeared in medical literature concerning it. For several years cases of absolute lymphocytosis had been known to have been published as being lymphatic leukemias caused by one or other method, as pseudo leukemias and "lymphocytosis due to infection" (4, 5). In 1912 Darwatz (4) wrote of a number of cases of angina resembling diphtheria with a lymphatic reaction. He noted the enlarged glands and characterized the lymphatic reaction in the blood as a constitutional tendency of the individual patient to respond to infection in that way. In 1920 we have the first comprehensive account of the disease by Bryant and Evans in a paper 'Mononuclear Leucocytes in Reaction to Acute Infection (Infectious Mononucleosis)'. Their research was founded on the study of no cases in young adults, which they had collected over a period of some years. They noted the enlargement of lymph glands and spleen, the representative cell reaction in the blood, and the symptoms of a general infection. They called the condition infectious mononucleosis. In 1941 Tely and Minkley (6) recorded a case in a boy aged 5 as arising from glandular fever. Langguth (8), in 1933, published two cases as "infectious mononucleosis" and Darwatz and Minkley (7) the following year described the disease in two patients under the heading "acute lymphadenitis." By 1929 the identity of glandular fever and infectious mononucleosis was accepted in Britain and America. For several years however, on the Continent, the occurrence of the lymphatic reaction and mononuclear angina were not regarded as cases of glandular fever. In 1935 Ishakowitz (9) in the Continent introduced the opinion that glandular fever and mononuclear angina were identical diseases. In 1941 Tely (10) in the Russian literature fully described glandular fever in the various forms. There have no authoritative account of the subject and will be frequently referred to.

Etiology.—The disease is widely distributed, and it is probable that, with the increasing attention drawn to it in recent years, it will be recognized in other countries where hitherto it is unrecorded. It has been found over the greater part of Europe, in North America, China, and in Australia. No age appears to be immune, but it is rare under 7 or over 30 years. The glandular type is commonest below the age of 5 and 15, the febrile type between 21 and 30, and the angina type between 35 and 55.

The incubation period is reported to be between two and fifteen days, with a tendency towards the shorter period. The degree of infectivity is not high, and single cases may occur in a family without the other members being affected. The duration of infectivity is uncertain, but Tilly suggests that with a reduction from the time the temperature has become normal and the nasal glandular enlargement has subsided. Outbreaks of the disease may occur over weeks or months. On the whole there is no difference between sporadic and epidemic cases. The causal factor in the disease is unknown, but it is generally accepted to be a virus. The presence of histopathological changes in the lined of glandular fever patients was discovered by Daniel (16). The explanation of this is unknown, but the knowledge has been utilized in a diagnosis, test in suspected glandular fever cases. The mode of transmission of the disease is uncertain, but it appears most probably to be by droplet infection.

Pathology.—Fatal cases of the disease are rare and when they occur are usually due to complications. Bulbridge (17) found that macrophages only the lymph glands show a relatively normal architecture. Germinal centres are replaced by areas of lymphatic hyperplasia, necrosis is frequent and there is marked variation in the size of the cells many of which have nuclei like those found in the blood. Frost (12) in 1931 described only white cell hyperplasia of the reticulo endothelial cells.

Alterations in the blood picture is one of the most interesting and characteristic features of the disease. The erythrocytes are not affected as a rule though a slight secondary anaemia may occur in convalescence. The important change is in the leucocyte cells of the blood stream. In considering this, an endeavour must be made to avoid tampering on the conventional notion a land which was made the pathology and morphology of the various mononuclear cells found in the blood stream. The field covering lymphocytes and plasma lymphocytes monocytes and primitive monocytes is one in which the terminology of them and other constants have as yet found no agreement. Sprunt and Davis (18) and Whittle and Britton (14) describe three types of mononuclear cell as occurring in the blood in the disease. A small mononuclear element with the lymphocyte of normal blood a large mononuclear like that of the large mononuclear cell of normal blood and a third type of mononuclear cell usually occurring in normal blood. For the present purpose the classification of the disease in connection with a blood count distinguishing between primary type and mononuclear cell usually is sufficient. As with the white cell count there are several points the higher limits of normal although counts of 50,000 and even higher have been recorded. Sprunt and Davis found the white cell count normal only in the disease rising later in between 15,000 and 25,000. In the convalescent phase of the glandular type of the disease Tilly found a transient polymorphonuclear leucocytosis which declined with the onset of glandular swelling. Leucopenia occurs rarely and only early in the disease. Microabscesses and glandular enlargement

was only 10.5% leukocytes and mononuclear cells were comprised 45 to 60 per cent of the total white count, with 31.5 per cent the highest recorded. The degree of mononuclearism does not bear any direct relationship to the age of the patient, and all percentages over 50 are rare. Goldsby gave the results of 104 blood counts on 65 patients with glandular fever as follows:—Leucocytes, 10,177; polymorphonuclears, 49.7 per cent., mononuclears, 50.3 per cent. The cases reported by Tully showed counts of 90 to 95 per cent mononuclears, Longacre, 55 per cent, and Berman 5 (15) 80 per cent.

CLINICAL FEATURES

The essential features of glandular fever consist of systemic, glandular enlargement, changes in the blood and faecal effluvia. The disease may be divided into three main types (Tully), according to the predominance of one or other of the above characteristics. At the same time it must be recognized that there is no clear cut subdivision, and that cases may occur which cannot be easily classified in any one group.

Glandular Type.—This is characteristically found in childhood, usually between the ages of 10 and 14, but it is by no means confined to this age group. The onset in children is fairly acute. There is usually a prodromal period of a few days in which symptoms are made of headache and malaise. The temperature is raised to 101°F or higher. The glandular swelling most frequently affects the cervical group, though the glands in other regions may also be affected. It occurs early in the course of the infection, often within the first three days, and usually subsides after two or three days. The temperature falls with subsiding in one of the glands and is usually normal in the second week. Complications are often made of one throat of the onset, but no exanthematic rash will be seen. There may be some local congestion and slight swelling with tonsillar enlargement. The constitutional symptoms are often slight and the pulse and respiration are slow in relation to the temperature. There is no cough and no sputum. Vomiting may occur occasionally in the first, and there may be a slight cough. The spleen is palpable in about half the cases.

Icteric Type.—This type more commonly affects adults but is not unknown in children. The onset is sudden, with general headache and malaise. At other times the onset is rapid and the initial symptoms ill-defined. The headache may be severe enough to suggest meningitis. There is no increase in the size of the glands at this stage. Often the pulse rate is low in proportion to the elevation of temperature. Ten days later or a week about a week. Sometimes between the fourth and tenth day a pinkish maculo-papular or subilethemic rash appears which may slowly resemble that of typhoid. It is distributed mainly on the front of the trunk. Sometimes this eruption does not appear at all or may be transient and easily overlooked. The temperature is raised during the eruptive phase which may last as long as fourteen days. The rash when present disappears before the stage of glandular enlargement, which may

usually lost in the first week. The glands soon return to the normal, non-inflamed state in which no suppurative glands are apparently present. The survival and distribution of enlarged gland-organisms, and in some instances it requires a careful search to find any palpable glands, is subject to errors which are numerous. It has been recommended on that of pathologic specimens of acute fibrinous adenitis, it is confined to the left cervical region, and it is usually the glands deep to the sternomastoid which are best affected. The glands are firm and elastic, white, and moderately tender. Some throat is raw. With the onset of glandular enlargement there is an increase in temperature. The temperature is constant for several days. Then becomes intermittent, and then gradually falls to normal. With the gland enlargement the spleen is about 50 per cent. of size, becomes palpable. A transient positive Wassermann reaction may be found [66, 67]. Submental pain and swelling may occur due to enlarged submental glands, and appendicitis may be simulated. Erysipelas not uncommon and may cover over many months.

Wassermann Negative Type.—Changes in the sternomastoid blood picture have long been known to accompany severe, moderate, and mild forms of the acute and chronic and fibrinous [15] adenitis. There may be an etiological relationship between Vincent's infection of the throat and an enlarged sternomastoid distinguishable from glandular fever. For long the condition known as "interceptive angina" was considered a separate entity from glandular fever on the Continent but with Schramm's monograph in 1914 this work has been altered. In this type throat symptoms are predominant. The age-group affected is usually from 10 to 25 years. There is a constitutional prodromal period during which the only complaint is of malaise. This may be as long as three weeks, when throat symptoms gradually appear and an examination reveals a well marked membrane resembling that in diphtheria is found. Bacteriological examination reveals no typical organisms and though the epiglottis and tonsillar tissues may occasionally be found they are no part of the disease. With the appearance of the membrane the cervical glands enlarge and the temperature is raised. There may be some cervical and parotid lymphadenitis but suppuration is rare. The second week, unlike that in diphtheria, may persist for many days and does not lead to spread beyond the throat region. Pyrexia may persist for several weeks but when once established remission is rapid.

Apart from the three main types of glandular fever described, considerable variation in clinical type may exist, and this is particularly so in sporadic cases. Mild cases of the fibrinous type may occur in which the first symptom may be enlargement of glands. In others the peripheral glands may not be enlarged at all or there may be no such or as has been recorded in a fibrinous case, the blood picture may be normal.

Complications.—Suppuration of glands is uncommon and due to superadded infection and it is noteworthy that it is equally infrequent in the anginous type of the disease. Other occasional complications are conjunctivitis

with enlarged lymphatic spaces, leukocytes and pus cells. A slight cough is fairly frequent, and bronchitis and broncho-pneumonia may occur.

Diagnosis.

The diagnosis of glandular fever may be comparatively easy when characteristic features are present, but in other cases it may be difficult or impossible to do so pending their development. A diagnosis not of considerable value has been advanced by Howell. It depends on an observed increase of heterophil agglutinins in the blood for sheep and cattle. This is not found in Vincent's disease, agnathous leukaemia, or in the leukemias. Howell says: "It seems probable to accept this test for heterophil agglutins for sheep cells as a reliable diagnostic procedure in differentiating a severe mononucleosis from a number of clinical conditions of a far more serious nature. Glandular type. The differential diagnosis from an early lymphatic leukemia may present some difficulty. Fever and upper respiratory tract symptoms are common to both lymphatic leukemia. With it, however, the pulse is more rapidly *di*. There is usually more marked anorexia, a tendency to haemorrhages and the characteristic types of mononuclear cell does not occur. The benign course and recovery from glandular fever is essentially distinctive. In Hodgkin's disease the blood picture is not suggestive while the gland enlargement is regional rather than general. Gordon's test and histological examination would decide in doubtful cases. Syphilis could be recognized by the history, the signs of syphilitic infection elsewhere, and the complement deviation test, but the treatment picture syphilis should be borne in mind. With children, who often react to infection with not only a relative but no absolute lymphocytosis. The presence of enlarged axillary glands may make an accurate diagnosis very uncertain. Sepsis may be mistaken as glandular fever, as there may be some edema near the neck glands.

Leukic Type.—Diagnosis in this type may be impossible before the stage of glandular swelling and mononucleosis. Typhoid may be suspected but the clinical conditions of the present, with aetiological and bacteriological facts should distinguish it from glandular fever. Leukemia may grow directly but so if the glandular enlargement is more enlarged or fluctuating, the cells are rarely affected, and usually the leucocytes are below normal in number. Tuberculosis either local or general in character should rarely give difficulty. The sepsis type must be distinguished from typhoid, the long prodromal period and course of mononucleosis argues the latter rather than the general glandular enlargement and the result of swelling the throat seems to differ. Relative mononucleosis and agnathous may occur in Vincent's collection of the throat, but there is no mononucleosis or absolute mononucleosis [19]. Leukic fever gives rise to a polymorphonuclear count and the rash and general ophthalmology characterize it.

Treatment.—There is no specific treatment for this disease. The serum of mononucleosis has been used and considerable success claimed. The

temperature very irregularly, and only a few small crops of rice and mungpoot and a few small banana plants and bamboo. Temperature during the period of incubation rose 3 units 24 hours after temperature is normal is accompanied by 1000 leucocytes per mm. that the infective period is confined to the early stage of life.

Clinical notes of cases in animal hospital:—

Case 1.—A 12 years old animal was admitted to the Royal West Hospital, Chatham, on May 12, 1937, with a diagnosis of acute left pharyngitis. The history was that he had not been in fit or sound health for 2 months. A week before admission he complained of a sore throat, followed next day by a swelling below the right mandibular angle. This was rapidly followed by a similar swelling on the left side of the neck. Later tenderness in the neck and groin directed the attention to similar swellings there. On admission patient was pale, with a heavy mucous drip. No rash was present. The tongue felt clean and the faeces and urine had dry. A suppurative abscess was about 1½ in. at a suppurative point was present on the right hand and there was hyperaemia of the pharyngeal lymphoid tissue. The tonsils were not enlarged, no gross throat signs were present and there was no acute inflammatory response. Hyperaemia on both sides of the neck were enlarged scrofula glands and chains in scrofula. The axillary and inguinal groups were normal, absent. There was no other sign suggestive of leish. The temperature on admission was 100° F. and the pulse rate 80. A blood count showed red cells 1,180,000, haemoglobin 65 per cent., white cells 12,000 leucocytes 14,000 polymorphonuclears 1 per cent., mononuclears 79 per cent. The Wassermann reaction was negative and the Van der Burch test showed leishmania positive leish. During the next three days there was a mild pyrexia at about 100° F. while the lymph gland swelling and tenderness subsided. A week after admission patient complained of a severe inguinal leishmania which was purulent and lasted four days. With this leishmania there was more severe respiratory but during 4 days was absent. The glandular swelling gradually subsided but was not present to some extent on discharge from hospital on July 5, 1937. There was no further pyrexia, the spleen was no longer palpable at any time, and on discharge the leucocyte count was 1,400 with polymorphonuclears 49 per cent. and mononuclears 50 per cent.

Case 2.—H. G. an 8 years old 44 was admitted to hospital on May 15, 1937. His symptoms dated from two days previously when he complained of swelling and pain in the right axilla. Axilla swelling was taken of the right enlarged gland present but two days later he felt sore and had his hair really been off about for about three weeks. The temperature was 100° F. and the right axilla leishmania showed acute infection. For a few days prior to admission he complained of leishmania, right axilla and a persistent leishmania which was worse at night. Patient looked well, tongue clean and moist and pharynx appeared normal. An enlarged gland was present on the right axilla but there was no other evidence of gland enlargement. No rash was present and spleen was not palpable. Two days after admission he complained of sore throat and of some general ill health. The throat signs and pharynx were normal. The glands in the posterior cervical, axillary, axillary and inguinal regions were enlarged and tender. Temperature was 101° F. and pulse rate 90. A blood count showed red cells 1,170,000, haemoglobin 65 per cent., white cells 12,000 leucocytes 10,000 polymorphonuclears 71 per cent., mononuclears 29 per cent. Wassermann reaction negative. The temperature did not exceed 101° F. and four days after admission temperature and pulse rate were normal. Seven days after admission the lymph gland swelling and leishmania

were resulting and throat symptoms had subsided. The glands gradually got smaller, but on discharge from hospital they were still palpable in the affected regions. While he was under observation no rash was observed, and the spleen was never palpable. The leucocyte count on discharge was normal with unequal number of granules, cells and mononuclears.

Case 4.—B. C., a Sikhian, aged 36, was admitted to hospital on June 22, 1937, five days previously he felt chilly when he awoke. The next night he perspired freely and had several shivery attacks. He complained of headache and slight cough but had no other symptoms. For the next five days there was a temperature varying between 38° and 40° F. which continued intermittently. On admission patient was slightly flushed, tongue clean and the lungs, heart and throat appeared normal. The posterior cervical, submaxillary and axillary glands were enlarged, discrete, mobile and not tender. There was no splenic enlargement and no other abnormal signs were present. Throat was sore though not very severe but repeated swabs were negative, made on hospital by and first local period swabs. At entry of the gland, revealed no pathogenic disease. The Wassermann reaction was negative. A blood examination showed red blood cells 4,700,000, haemoglobin 85 per cent, colour index 0.92, leucocytes 28,000, polymorphonuclears 5.5 per cent, mononuclears 94.5 per cent. The patient again before the glandular enlargement, showed no abnormal signs, and on spite of a rectal temperature of 100° to 101° F. he got well. The temperature returned to normal on July 5, 1937 and remained normal until he was discharged from hospital. The gland swelling subsided gradually and blood examination on discharge showed a normal leucocyte count and a normal proportion of granules cells to mononuclears.

It is considered that these three cases are fairly typical of glandular fever of the mild type. In Cases 1 and 2 the onset was insidious, with malaise, while in Case 3 it was more typically sudden and accompanied by rigors. In none of the cases was a rash noted, but it is possible that this may have been present in the earlier convalescent stage of the disease before the patients came under observation. Edinburgh found the spleen palpable in 55 per cent of his 543 cases but it is noteworthy that the spleen in the three cases described never became palpable. It is remarkable that rare throat is rarely seen, though in an adult, but in Cases 1 and 3 there was quite a pronounced symptom, although throat examination revealed little abnormal. The period of prostration in Cases 1 and 2 was short but in a possible more degree was present in some time previous to admission to hospital. The blood picture was characteristic of glandular fever, and Case 3, with a mononuclear count of 96 per cent, is unusual. A mononuclearity of 50.5 per cent is the highest so far recorded in this disease. In all three patients the glandular enlargement affected all the main upper head groups and at the time of discharge from hospital had not subsided to normal limits.

DISCUSSION

(1) An account of glandular fever (infectious mononucleosis) is given with reference to the more important literature dealing with the subject.

(2) Three cases considered to be glandular fever, admitted to a civil hospital are described.

(3) A brief discussion of the main features of these cases is given.

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ANEMIA AND ERYTHROCYTOSIS IN HIND SLUTH AND WHITE TRO HART

By G. M. Southam-Sawder, G. M. M. (HAROLD) S. S. S.

During recent years helminthiasis in the form of *Trichostrongylus axei* and other allied nematodes has been used very extensively for the treatment of anemia in the dog, but it has not been confined to an attack on the erythrocytes, but it has been found against the anemias caused by various types of anemia, including sickle cell anemia and other anemias with varying degrees of anemia.

The degree has also varied considerably, and the treatment effective due to any particular infection has not yet been found.

Following the widespread use of the drug it has been found that in some instances various bone marrow diseases have appeared. Various diseases such as leukemia and lymphoma, vomiting, signs of urinary tract infection, and peripheral sensory disturbances have appeared.

More than perhaps than any of these is the effect of the drug upon the blood picture. Slight erythrocytosis and moderate leukocytosis have been described (Sawder and Southam, 1957), and in our own cases one patient developed a complete agranulocytosis, and three others some degree of anemia with evidence of decreased bone marrow activity.

ANEMIA AND ERYTHROCYTOSIS

Following the use of anthelmintic and similar compounds a few cases of agranulocytosis have already been reported by Jones, Plummer and Haddad (1957) all with fatal terminations. One case the description of which follows is the only one yet reported which has recovered.

14. Received from the author on the date of October 10, 1957.

Cases 1–4 began to appear in 1985 and were first observed during summer and autumn 1985. One fish had symptoms of pleuritic edema and was treated in hospital for two months. The symptoms

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

No.	Name of your family	Number persons in family	No. of years in U.S.	Occupations of males (over 14)					Total family earnings	
				Family managing a	Professional or operative	Business or sales	Other not in 1-4	None	From wages	From business
1	John Smith	4	10	1	0	0	1	0	1	0
2	John Smith	3	10	1	0	0	0	0	0	0
3	John Smith	3	10	1	0	0	0	0	0	0
4	John Smith	3	10	1	0	0	0	0	0	0
5	John Smith	3	10	1	0	0	0	0	0	0
6	John Smith	3	10	1	0	0	0	0	0	0
7	John Smith	3	10	1	0	0	0	0	0	0
8	John Smith	3	10	1	0	0	0	0	0	0
9	John Smith	3	10	1	0	0	0	0	0	0
10	John Smith	3	10	1	0	0	0	0	0	0

[illegible]

visibly intense redness). Black stool lasted about six weeks. In June 1981 she had radiologic studies that she was admitted to Hammersmith Hospital. Histologic specimens from a biopsy were submitted from the stools. Squamous cells showed a deeply angulated and pleomorphic nuclear structure. The thickness of the mucosa was again gone by July 18, but symptomatically the patient was much better. By July 20 the stools were solid and were only just streaked with blood.

Staphylococci 1.5 g three daily, was given by three weeks from June 20, 1949, of staphylococci in all. During that time the infection disappeared, and the patient remained quite well. On July 12, the third day after ceasing therapy, there was slight dyspnea. In the evening the temperature rose to 101° F. Two days later this patient was very red and had several patches of erythema about ankles. There was a few smaller patches inside the legs and thighs. The temperature had risen to 103.5° F. A throat swab gave a growth of *Staphylococcus aureus* (temperatures variable, and a very localized inflammation). In this disease many to staphylococci and streptococci were also seen. The patient was treated with oral cephalexin. Her culture was high and the pain rate rapid. During the next three days her throat and lymphatic nodes nearly returned to normal and uninfected, and the temperature remained at 102° F. The cervical glands were considerably enlarged and enlarged.

[illegible]

RESULTS

These cases are described by Harvey and Janeway (1932) which developed hemolytic anemia during treatment with sulfaphenazole. Out of these cases which also developed an anemia following the use of the drug are described below.

Case 1.—A female, aged 40, of fair physique and previously a healthy man. He was admitted on the second day of a streptococcal meningitis and was almost comatose.

Lumbar punctures were performed twice on the first day, and 20 c.c. of cerebrospinal fluid was removed intensively and 10 c.c. administered. The day after 10 c.c. of processed serum was given and 10 c.c. the next day. Again lumbar puncture was repeated. The following day he was able to take 2 g. of sulfaphenazole three daily by mouth, and lumbar puncture was again performed. This procedure was followed for four days and then on when was last observed day

Table 11 (Cont. 9)

No. at time	Hb. (gm.)	Hct. (vol.)	Blood count (cells/cu. mm.)	W. B. C.	Differential (White cells)					Platelets (cells/cu. mm.)
					Leucocytes	Lymphocytes	Myelocytes	Neutrophils	Eosinophils	
1st	15.00 (100)	75	5.5	12,500	50.0	30.0	1.0	—	—	100
2nd	15.00 (100)	80	4.1	10,000	10.0	10.0	—	—	—	100
3rd	15.00 (100)	80	1.0	11,000	70.0	30.0	—	—	—	—
4th	15.00 (100)	80	1.4	10,000	60.0	40.0	0.5	0.5	0.5	100
5th	15.00 (100)	80	5.0	11,500	10.0	60.0	—	—	—	—
6th	15.00 (100)	80	4.0	12,000	10.0	60.0	—	—	—	—
7th	15.00 (100)	80	7.0	10,000	10.0	60.0	—	—	—	—
8th	15.00 (100)	80	7.1	10,000	10.0	60.0	—	—	—	—
9th	15.00 (100)	80	0.0	10,000	10.0	90.0	—	—	—	—
10th	15.00 (100)	80	0.0	10,000	10.0	90.0	—	—	—	—
11th	15.00 (100)	80	0.0	10,000	10.0	90.0	—	—	—	—
12th	15.00 (100)	80	0.0	10,000	10.0	90.0	—	—	—	—

* Blood transfusion. RBCs were given.

Table 12 (Cont. 10) — ANEMIA OF QUINACRIDINE

No. at time	Hb. (gm.)	Hct. (vol.)	Erythrocytes		Leucocytes	W. B. C.	Platelets
			Count/mm.	Count/mm.			
1st	15.00	75	100	—	100	—	—
2nd	15.00	75	100	—	100	—	—
3rd	15.00	75	100	—	100	—	—
4th	15.00	75	100	—	100	—	—
5th	15.00	75	100	—	100	—	—
6th	15.00	75	100	—	100	—	—
7th	15.00	75	100	—	100	—	—
8th	15.00	75	100	—	100	—	—
9th	15.00	75	100	—	100	—	—
10th	15.00	75	100	—	100	—	—
11th	15.00	75	100	—	100	—	—
12th	15.00	75	100	—	100	—	—

in the absence of demonstrable thrombocytopenia for the full course of illness, and qualitative examination demonstrated no schistocytes (i.e., per 1000 cells, 0 to 100). The mean count (g.) of schistocytes was greater than daily, as from the third to the seventh day after the splenectomy was stopped. It was by microscopic count and not by flow cytometry that schistocytes in the sediment of a 10% hematocrit were observed during the eighth day of splenectomy and a 10 g. of packed serum had been given.

The patient had a hematocrit of 40% on admission, the red cells being 3,000,000 per c.c. and the hemoglobin 12 per cent. The white cell picture was normal. On the eighth day of treatment the red cells had fallen to 2,500,000 per c.c. and the hemoglobin to 10 per cent. There were a few scattered reds of both the red and white cell series in the peripheral blood (Tables II and III). The character of the anemia was not altered although there was an improvement of 10 per cent. in the hematocrit and a slight rise in red cells following one therapy and a blood transfusion (Table II). The patient felt perfectly well throughout the period of anemia and remained quite alert. No evidence was found of splenic or reticuloendothelial system, spleen was then placed on laboratory evidence of hematopoietic activity. The patient's spleen became palpable on the nineteenth day of the illness and on the twenty-fourth day was still 1 cm. below the costal margin on deep inspiration.

On May 8, 1960, again he came to hospital with a recurrence of a 10 cell sediment, which had previously been absent for six months up to a course of splenectomy. The spleen had become very tender when it was palpated but he felt neither ill nor fatigued and weighed 70 lb. The gross contained a thousand per cent. 10 cells and there was no evidence of laboratory evidence of hematopoietic activity. The spleen was removed on the twenty-fourth day of the illness and on the twenty-sixth day was still 1 cm. below the costal margin on deep inspiration.

TABLE II (Cont. 4)

Date	H.B.C.T. (per cent)	Reticulo- cytes (per cent)	Haptoglobin (g/l)	W.B.C.	Differential Leucocyte Count				
					Neutrophils	Lymphocytes	Monocytes	Eosinophils	Platelets
May 1	4,000,000	—	—	10,000	45	55	—	—	1
May 2	4,000,000	—	—	10,000	50	50	—	—	1
5	4,000,000	—	—	10,000	45	55	—	—	1
8	4,000,000	10.1	—	10,000	45	55	—	—	1
11	4,000,000	10.1	—	10,000	45	55	—	—	1
14	4,000,000	10.1	—	10,000	45	55	—	—	1
17	4,000,000	10.1	—	10,000	45	55	—	—	1
20	4,000,000	10.1	—	10,000	45	55	—	—	1
23	4,000,000	10.1	—	10,000	45	55	—	—	1
26	4,000,000	10.1	—	10,000	45	55	—	—	1
29	4,000,000	10.1	—	10,000	45	55	—	—	1
31	4,000,000	10.1	—	10,000	45	55	—	—	1
June 3	4,000,000	10.1	—	10,000	45	55	—	—	1
6	4,000,000	10.1	—	10,000	45	55	—	—	1
9	4,000,000	10.1	—	10,000	45	55	—	—	1
12	4,000,000	10.1	—	10,000	45	55	—	—	1

10 Cells per cent. and platelets normal.

Splenectomy was given for recurrent days from May 20 to 24 g. being given daily and 10-15 g. on 24. At the end of this time the spleen was removed and there was no response. The spleen was removed on June 15 and 100 per cent. was again found in the blood. A further course of splenectomy was given 10 g. daily being given over four to seven days up to July 15. In spite of several courses there was no effect of this time, the symptoms of pyrexia persisted. A splenectomy was performed on the twenty-fourth day of the illness, and provided with splenectomy and treatment was given.

The blood parameters of humans were normal. In the chimpanzees, a combination of heavy cold or fever (temp. 101.0-101.5 °C), a moderate decrease in prothrombin time (13-15 sec) and a normal or slightly elevated haematocrit (40-45%) were noted. There were no gross cellular abnormalities and the haemogram was normal (normal human values).

Case 1—A child aged 3½ years with focal epilepsy, weighing 20 lb. She was treated for a 2½ year period with 1.5 gm. of Dilantin daily, and was stable, but the condition worsened and she was often sick, and lost weight. At the end of three months, paracetamol, penicillin and codeine were given to relieve the pain. She was given 1½ g. of a diphenhydramine elixir, but with no effect over 5 days from July 2. At the end of this period she was stable. She received a little aspirin on July 14, but no further decrease in amount of discharge of the tongue. On July 20, diphenhydramine was given again, this time 1½ g. on the next day had been stopped. On the following day (July 21) she was given 4 g. of Dilantin. She seemed definitely better. The blood was re-examined 4 days later, and showed which human case seems for a few days, but there is also the appearance of P45, V, leucocytes were a feature of the blood, and the leucocytes were 10,000. No gross changes present. There was 100% for 1½ hours. The 2½ g. solution presented but not 1½ g. in a bottle and was not repeated well.

TABLE 1. Dose and effect

Case	Age	Sex	Weight (kg)	Dose (mg/kg)	Time (hr)	Effect			
						Prothrombin time (sec)	Haematocrit (%)	Leucocytes (10 ⁹ /l)	Remarks
1	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
2	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
3	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
4	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
5	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
6	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
7	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
8	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
9	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable
10	3½	F	9.0	1.5	24	13.5	40.0	10.0	Stable

Discussion

Experiments have shown that a diphenhydramine and its metabolite may have a marked toxic effect upon the nervous system (1, 2) which may be due to the action of the metabolite upon the nervous system. This effect is explained by the chemical structure of diphenhydramine as pointed out by (3)—namely, benzene ring substituted with a methyl group and a benzene ring substituted with a methyl group. The toxicity may be dependent upon the chemical structure and may be of a different degree on these two functions in the same molecule.

Incidence of this side effect in patients who developed neuroleptic psychosis (Case 1) with only a moderate degree of toxicity and another patient (Case 2) who developed a severe amount of neuroleptic psychosis, both with only a slight decrease in the number of normal leucocytes.

In all six cases in which the mixture was diluted large doses of diphenhydramine were used. The tolerance to this drug, however, in man

normal blood (normal counts, following, two months of therapy) showing traces of leukocytes (15,000) showed no active normal red count and a haematocrit (15.000 per cent) and only developed a slight transient anaemia.

No change in the haematocrit count occurred beyond a temporary fall to a normal figure (15,000 per cent). This patient a case of 37, with a 'diffuse' pericarditis infection on a congested cardiac lesion, survived about six g. of salphidomide in just over three months. There were months of rest and eleven days in the hospital during this time. The patient, whose haematocrit, paracentesis, showed normal improvement, and there was neither nodular endocarditis nor salphidomide, as was due. The red cell count after two months therapy fell from 5,000,000 per cent to 4,000,000, and the haematocrit from 180 per cent to 160 per cent. But with rest therapy the count returned to normal although the endocarditis was continued.

Both salphidomide as well as salphidomide the most common which constitutes a toxic dose is not known. In our cases the use of the total dose seems to be the important factor, for in two cases blood changes occurred only after a long course of the drug. Treatment was shown to be more or less effective—that of salphidomide, and the fourth case was that of a child who was given an adult dose of the drug.

Certain facts must be considered when these drugs are used in the treatment of endocarditis. Individuals may have an 'idiosyncrasy', and some symptoms may appear when only very small doses are used. Symptoms may appear after prolonged or intensive treatment. More care is probably needed with anaemia, aged or debilitated patients. A haematocrit count for a month of about 160 in a weight of 15 g to 20 g, daily a probably safe followed by a period of rest.

When a course of treatment is decided upon, frequent blood counts should be done whenever possible, and the appearance of anaemia or other signs as a warning to a sign that the drug should be stopped. Such control of the blood picture is very necessary when prolonged or intensive treatment with the drug is considered.

The therapeutic results in our cases were very disappointing. In the case of valvular bacterial endocarditis, there was only a temporary improvement though this was all that might be expected. Salphidomide occurred in both cases with 15 cc urinary infections. In the two remaining cases—the meningitis and agnathosis which were cured, there were other factors which make it difficult to assess the effect of salphidomide.

My thanks are due to the Editor of the *Lancet* and to Dr. G. H. Jennings for permission to publish this abstract.

FEET

[Continued from page 107, column 2.]

A great large number of working days are lost in this year as through defects of the feet and it must be admitted that this most important part of the human body does not receive the attention it merits. It is not proposed here to deal with medical conditions because almost all of us with good surgical conditions, which are obvious and which therefore receive treatment at once. The purpose of this article is to call attention to a number of surgical conditions, which are not often overlooked in the early stages, with consequent long periods of sickness, later and possibly ailments resulting and to point out some of the shoes to which the feet of a normal person are subjected.

ANATOMY OF THE FOOT

The detailed anatomy of the foot can be found in any standard text book on the subject. Unless I have to consider the structure of the foot as a whole. The foot may be divided into two segments: the entire segment consisting of the os calcis, articulating the three metatarsals, and the three lesser digits forming the inner longitudinal arch and the outer segment, os calcis, tarsal and the two lesser digits forming, the outer longitudinal arch. A transverse arch formed by the heads of the meta tarsals is frequently described. Personally I am of opinion that the heads of all the metatarsals are intended to touch the ground, though just proximal to these heads the metatarsals do form an arch. The dropped heel and the over appearance of the foot would seem to point this out and it seems quite likely that nature intended that there out of the metatarsals should not bear any weight.

There is another arch (in curve) which is seldom mentioned and which I think is best called the *external curve*, as it does not really go with all. The curve side of the foot should form a distinct curve with the convexity upwards as if the foot was placed together back and front the heel, there should be a space of at least one finger's breadth between the soles. This is well shown in fig. 10. The curve side of the foot has should continue this curve. The maintenance of this curve is of the greatest importance. Its disappearance is one of the earliest signs of foot strain and always promises collapse of the longitudinal arches.

THE THREE POINTS

Only slight gliding movement is permitted at each joint, but as it aggregates they allow a considerable amount of movement to the foot. Out of three of these joints will be mentioned here:—

The *metatarsal-phalangeal* or *metatarsophalangeal* joint. Movement at this joint

supported and sustained. Second. The ligaments contain a considerable amount of elastic tissue.

The ligaments contribute to the support of the foot not, in addition to the bones, by merely, the lateral, tarsal and metatarsal, these lateral ligaments, the deep tarsal ligaments, and the peronei. The last two of these I think, the lateral peronei, are perhaps the most important in erect the foot, well help to maintain the entire longitudinal arch and the central curve of the foot. The peronei brevis and peronei tertius inserted into the base of the fifth metatarsal tend to erect the foot, thereby diminishing the central curve. The peronei longus, whose tendon passes across the sole of the foot from without upwards to be inserted into the base of the first metatarsal and first phalanx has a similar action but to a much more marked degree. Its function is to flatten the foot. (Personal opinion is expressed in one of the causes of "flat foot.") It therefore follows that nature intended the foot to be capable of being flattened in other words the foot should be a flexible structure, not a rigid one.

A study of the foot of bare footed native men will illustrate these points. A native when standing at rest will often appear to have feet which are completely flat but as soon as he prepares to move the arches of his feet are immediately raised. When he is walking or running he appears to be leaning his feet in. This is due to his well marked external curve in the foot but his great toe has not been forced outwards by the foot, and so this fact that he walks on outer margin of foot to walk, with its elevation the foot. Thus normal use is made of the longitudinal arches and of the metatarsophalangeal joints and the muscles of the leg are properly exercised and therefore kept in good condition. As weight is transferred from heel to toe the line of force is along the axis of the foot (fig. 2) and so no undue strain is thrown on any of the tarsal joints or ligaments.

This is the correct way to walk or run. When standing with the heels together the natural position of rest is with the lower limbs slightly crossed upwards to the position of attention (which naturally should be a position of readiness, not one of rigidity), but as soon as the limbs are swung forward the toes should normally turn to the front. The civilized habit of teaching children to walk with their feet turned outwards is responsible for a great deal of foot trouble in later life.

FLAT FEET

It being to look at nature's support, an undue proportion of the strain of supporting the foot is thrown on the ligaments, these ligaments become toughened and lose their elasticity. Further stress tends to stretch these tendons, ligaments and other soft parts and causes pain. Owing to the toughening of the ligaments the mobility of the foot becomes limited and it is still further limited by the natural response to pain, namely voluntary contractions of the painful part. Hence no effort is made to use the foot and things go from bad to worse. The most serious result

and possibly various structural alterations are "symptoms of" a state known as plantar fasciitis, because the foot and ankle discomforts from this condition. While a flat foot is (superficially) labeled "pes planus," it is in quite "wrong" as it is not necessarily big, flat, but by far, before their changes come, in fact, as it is not flat. For example, would be a more correct title or better still, as it has been well named by Huxley, foot-sore.

We have seen that the cause of foot sores is weakness of the supporting muscles of the foot, and it is now necessary to look for the cause of this weakness before, apart from such obvious causes as injury, nervous diseases, etc. When walking properly, with the toes in the feet, those muscles of the foot and toe consequently kept in good condition. But if the toes are forced towards the line of force in the body, as occurs in various the case



Fig. 1



Fig. 2

the foot (Fig. 1) weight is not transferred from heel to toe, along the longitudinal axis, but from the outer to the inner side of the foot, thus imparting a lateral movement to it and pushing the mechanism a point of pressure. While the foot in this position normal movements cannot take place and the muscles determine both half of the foot, the position which are used for a certain extent to lift the outer border of the foot in the end of each step, rather less than the other. Prominent at the ankle-joint (Fig. 2) as we have seen already, causes external rotation and eversion of the distal part of the foot, the internal curve is thus abolished (Fig. 3) and in extreme cases it may even become a convex curve. The foot is now in a position to throw a severe strain on ligaments and soft parts, and a condition of foot strain results. A voluntary effort is made to fix the

grateful fact, but the only muscles capable of acting on the proximal, and these consequently become contracted and may even go into a spasm, if severe. If the foot is not already too rigid these spasms will cause it to



FIG. 1. Tetanus, showing spasm.

be drawn still more together. The patient may not know whether he is to rise or drop of the ground, or back-swing of the scapula, for the distal, as external turns now taking place of the involuntary spasms. (Fig. 2.)

at the fifth, extension at the first and proportionate movements at the second, third and fourth - in other words the metastasis becomes inverted. The extension at the first and second movements elevates the foot posteriorly of the knee, hyperextends neck and the foot becomes completely flat. In this completely flat state the foot may become pronated as it is no longer possible to throw any further stress on any ligaments, but such a foot is absolutely rigid and it is also impossible for the patient to walk with his toes to the front. He can only stamp along with the foot turned widely outwards. This is the last stage of the disease and no foot should ever be allowed to get into such a state. I cannot imagine any patient letting his foot get into this state before seeking advice, long before this he will be suffering from back-ache and will require with painful feet. His toes often happen that he medical advice fails to diagnose the condition and seeing an apparently fairly respectable work to his feet, sends him back to duty without any adequate treatment.

The treatment, without going into full details, consists of manipulation to break down adhesions; not forgetting that the metastasis is inverted while the stress is exerted suitable exercises to restore the normal position, and, above all, instruction in how to walk properly. Arch supports are again indispensable as they prevent full movement of the foot and discourage the use of the patient's own muscles.

Turning the foot outwards is responsible for other conditions as well, the "roll off" has to be from the head of the first metatarsal instead of from the great toe. The great toe therefore, tends to get in the way and becomes pushed outwards thus leading to hollow, valgus and further rupture. At the same time an undue stress is thrown on the inner side of the knee, joint movement any tendency there may be to give valgus and rendering the knee more liable to dislocate from within, e.g. from internal lateral ligament, dislocation of cruciate cartilages etc. It is extremely an extended system of the knee on the front which tests the internal cruciate or cartilage.

While foot-stress is by far the commonest cause of painful feet, yet there are a few other causes which may be easily missed if not specially looked for.

* BLISTER FRAGMENTS

This term is applied to a feature of the skin of a metatarsal when an definite history of injury can be obtained. It occurs in men who have been doing a lot of marching or jumping and in all circumstances wearing soldiers. The second or third metatarsal usually affected and the characteristic place for the fracture is about one inch proximal to the head of the bone. There is little or no displacement except in neglected cases. It is rare to see these cases at the very early stages as the onset of pain is immediate and the patient has usually been aware of some pain in his foot when marching for some little time before he reports it by which time further formation

2. *January 22, 1935.* The following day could distinguish the condition.

Case 1—A. M. Jones, physician aged 43 reported on March 10, 1935, each pain in the middle phalanx of the foot occurred for five or seven months in varying degree every two or three weeks, at first only on February 25, and he stated that this frequency of the foot condition rapidly subsided after that. He gave no history of any chronic disease, but as the pain seemed to come in, he stated that he decided to report it. There was no swelling, at any time, as the foot was of good shape. The pain was extremely sharp the middle of the night, and was left on morning; he was unable to get into bed on the last 3 weeks, and was found near the head of the bed in a semiconscious and propped on the middle toe habitually along the line of the metatarsal transverse.

On May 19, 1935, showed a fracture of the shaft of the second metatarsal near 1/2



FIGURE 1. B. RICHARD, 1935.

inch, within 48 hours of the fracture. The middle phalanx (Fig. 1) and appearance of the x-ray of the foot were with 1. The foot was treated first in plaster, and was made later in a cast. The middle phalanx had already healed the last of January 1935, no longer visible.

Case 2—A. M. Jones, aged 43, reported on the evening of February 25, 1935, having felt slight pains in the foot, which he thought were due to the weather. There was no definite history of injury, but the pain was felt on walking and on moving the foot, and was sometimes sharp at the base of the third and fourth metatarsals. There was no swelling, but there was tenderness on the



Fig. 1. Metatarsals, in view of origin, demonstrating peroneal attachment.



Fig. 2. Metatarsals, in view of origin, showing the peroneal attachment.

ing in, chiefly with the foot in the heel of the third metatarsal, and pressure of the third toe backwards was painful.

A ray (fig. 1) 10 mm. long seemed to show nothing of special pathological interest, except in the study of its distal epiphyseal plate, as seen from the front. The ray, as considered in position, and subsequently, as it was weeks later (fig. 2 and 3) is broken up in the course of ten years. It was disintegrated in distal fragments within the line of fracture having three fragments visible. There is already seen a loose mass in each of early stages, and by it shows how easily the fracture might be spread if not speedily treated for. (It shows easily figs. 2 and 3 how bone granulated the wrong way round.)

If the condition is not recognized and treated successfully, such complications as these in many, and though numerous, ultimately bring about, there will be some degree of disability which, whether great or slight, will result from the efficiency of the treatment. The only treatment necessary is amputation, and the only satisfactory way to obtain complete amolekation without confining the patient nearly in bed is by a plaster cast. Complete union takes place in from six to eight weeks, and the weight-bearing may be allowed until then. It is perhaps worth of note that in all the cases that I am among Royal Marine recruits at Dover the left foot was involved. Carcinoma did not cause a good deal of stamping on a hard granite ground particularly when turning short, and the left foot appears to get more than its share of this stamping. This may possibly account for its greater liability to this type of injury.

FRACURE OF A METATARSAL BONE

This is a much rarer injury, and is illustrated by the following case:—

CASE 2.—A Marine recruit, aged 21, reported on July 15, 1905, with pain in the ball of the left great toe, which he had first felt while jumping, in the gymnasium three days previously. There was some tenderness around the first metatarsal phalanx and tenderness was most marked on the outer surface of the head of the first metatarsal.

Roentgen's of the great toe were full and painful. A ray (figs. 10 and 11) showed a transverse fracture of the outer of the two metatarsal bones. The foot and great toe were immobilized in plaster and gases took place in two months (fig. 12). Thereafter he had no disability whatever and could carry out full duty and play games without any pain.

I had lost this excellent young man, years before. The patient was a quinine and a tonic amateur who had been playing much on various surfaces. The heavy games associated stamping the left foot down hard and on an other history of injury could be obtained this was presumably the cause of it. Certainly it was while landing that he first noticed the disability, but unfortunately he did not report it at once and therefore the cause of his trouble was not discovered for some time. Despite prolonged immobilization in bed did not take place. After about two months the pain when walking ceased and he had a useful foot for work purposes, but it could never land for long without a recurrence of pain.

These two cases again illustrate the importance of early diagnosis and immobilization of permanent disability is to be avoided.

Fig. 1
 1904-5
 1905-6



Fig. 1. Two feet of a patient with a severe case of osteoarthritis of the foot. The left foot is shown in the upper photograph and the right foot in the lower photograph.

CONDITIONS OF EXPOSURE

Excavation conditions are likely to influence the results. The ground is composed primarily of glacial till, with some lacustrine clays. The weathered and fractured nature of the former is highly susceptible to fracturing in the σ_1 direction, being easily despoiled by erosion. The latter is more resistant and is highly fractured in the σ_2 direction, as evidenced by the σ_2 fracture patterns. The weathered and fractured nature of the former is likely to influence the results in situations where σ_1 is in the direction of excavation.



Fig. 1. (a) Sample 10, showing σ_1 fracture pattern. (b) Sample 11, showing σ_2 fracture pattern.

Additionally, the σ_1 is at the whole weight of any specimen of the rock. It may be considered here that a perfect rock, with a total weight of 100 lb, is of the shape of the short three cylinders of the test, with a size of 100 mm diameter, 100 mm height, and divided into three equal parts (Fig. 1(a, b)).

Two vertical lines are then drawn vertically through the central cylinder, more typical of the type of fracture but in all cases perpendicular to

withdrawing food if it cannot dig and eat freely, weight bearing needed, and exercise necessary. If the foot maintains its normal shape, will develop.

MALOCCLUSIONS AND MALOCCLUSIONS, PROXIMAL

These conditions are caused by faulty biting habits and by working with and upon the teeth in such a manner as to cause malocclusion. The great toe is the support of the thrust, and in the open that weakness is well marked, the first metatarsal being well separated from the second. Consequently it is known being a foot shows marked weakness, with the result that there is a swelling between the heads of the first and second metatarsals. Consequently all the force and pressure applied to the great toe tend to move the distal oblique tarsals and adductor transversus muscles to pull the great toe into a rigid position and there is no nearly closed toe to resist this. Various treatments have been devised for these conditions with varying degrees of success, none does not present a long discussion on this subject but it may be said that removal of the whole of the head of the first metatarsal, one of the pillars of the entire longitudinal arch, must be wrong. In cases of malocclusion, no operative treatment in the region of the distal metatarsal phalangeal joint can be of the slightest use and the metatarsal deformity has been corrected, if necessary by amputation at the base of the first metatarsal.

Other common conditions of the foot, corns, ingrowing toenails, bunions, etc., need not be dealt with here, but it should be borne in mind that they are always secondary conditions and that no local treatment will be of any use until the cause has been removed.

FOOTWEAR

A few words on the subject of footwear might not be out of place here. The ideal foot for shoes is one which does not impede the normal movements of the foot, hence a foot must be pliable and must allow sufficient room for movements of the toes. The Royal Warrant concerning boots as issued to Royal Warrant is satisfactory so far as pliability is concerned but they might with advantage allow a little more room in the toe, both laterally and in depth. The permanent practice of forcing will wear any pair of boots by removing all the natural grace from the leather and working it rigid. No king or queen are provided in countries that practice no longer will they find their boots comfortable for marching. It is quite possible to get boots to show by methods which do not wear the leather but it takes appreciably longer, more should therefore be allowed, a reasonable length of time to get a shoe on a new pair of boots.

Shoes should be protected and newly purchased shoes should not be exposed to bare highly polished leather on their first appearance on parade. It is by no means easy to make parade ground conditions realize this!

Recently a trial has been given to a contract made with a very

in providing a safe, strong, light, and comfortable shoe. They have the record on a long-term, well-known, practical, and scientific shoe. The shoe is protected from injury by non-slip walking and has been tested to insure the shoe will remain safe in the event of an accident from foot slippage. The shoe is proved to be a good deal of work boots and is more than just a cheap, cheap, and low of efficiency.

The subject of foot is by no means a chemical, but enough has perhaps been said to emphasize the importance of medical examination and adequate early treatment of all cases of painful feet. A great deal of foot trouble can and should be prevented by proper co-operation between the computer and medical branches. The Physical Training School thanks to the lead given by the Army School of Physical Training, at Aldershot is now independent in such properly, but people joined institutions still have a liking for turned out too. 'low' boots and a lot of unnecessary stepping. It is up to Medical Officers to point out, and at the end of their own popularity to keep on pointing out their error, before any improvement can be expected.

NOTE OBSERVATIONS ON CHRONIC ARTERITIS

By GEORGE CHAMBERS & W. MARSHALL LEE, LONDON

There are a thousand paths and the path in *Arteritis* is the definite, definite, definite, and some of these are straight and some are crooked. It is some of the more crooked paths that I shall try to trace this evening in considering the treatment of the chronic arthritis, disease which occurs so commonly in this country.

Many attempts have been made to catalogue and define them. But then a catalog is no disease, their pathology is complex, and their manifestations to produce their classification on more ordinary, scientific basis is difficult and unsatisfactory. They are known with confidence to a very large majority of the inhabitants of these islands as the rheumatism, and regarded with the same sort of half-hearted scientific interest as certain other persons and considerable national authorities, such as the weather, the climate, the state of the sea, among those regarded like them as an inevitable part of the price of British citizenship and a part of that price paid which some Ireland is not exempt.

But to the mind of the physician the terms of most interest import. It requires that that glancing and almost careless people who leap and crawl the hyphen regions of rheumatism, chronic arthritis, with rare, non-arteritis, rheumatoid arthritis, arthritis deformans, and a horse often some of the best measures of great descriptive power and understanding, history.

* A report of a paper read at the 11th of October, held at R.N. Hospital, Portsmouth, December 1, 1912.

like, sometimes, *Staphylococcus aureus*, as their saprophytic and commensal hosts, may be easily isolated in culture. They are usually byproducts of the inevitable contamination, and although cultured on plates of medium, generally become more or less fastidious and fastidious and consequently, except in prepared/culture/ plates, mostly, laboratory diagnosis and diagnosis is a possibility and they constitute one of the major pathogens of clinical practice in this species. Their ecology is varied and by-passes most diseases, it is thus, an increasing evidence of its ubiquity, in the subject. One theory is that the human cell may be deficient in some, in which by feeding organisms using in the subject is almost a daily occurrence in the future, which has already existed in it is, in a culture, may be found.

The streptococcus, in the recent literature has of late years more and more determinedly placed itself on the forefront of the stage in Public Health for it is frequently encountered. Much recent research has been done, especially on the streptococcus, and its importance in various diseases. It has been shown repeatedly, that a pathogenic streptococcus is often obtained by picking up the oral cavity of diseased patients with various strains of streptococcus cultured from other patients suffering from the disease. Evidence of local origin is frequently forthcoming and may be taken in any of the usual ways. The teeth and the condition of organs immediately suspect and are frequently implicated—the teeth more commonly.

Oral streptococcus on the mouth and its spread disease has in one night, rapid in its growth and development in the ecology of disease, than previously referred, with two exceptions, but the latter conditions may give rise to secondary infection of the organism, more particularly of the dentures, which is frequently found to be at fault in these cases. The treatment of dental streptococcus may be directed in several ways. Antiseptics of this will point to such a defect and the improvement in certain cases which will result from a low fat diet, may provide a clue. Again, dental streptococcus is suggested by reduction and the application of a mild dose of silver nitrate light will produce a condition of streptococcus. In all suspected cases the dental teeth should be passed and an attempt made to secure specimens suitable for examination and culture.

It is probable that in many cases of chronic arthritis there is some underlying, but defect, leading to hyperbolic lesions and consequent direct nitrogen metabolism. This has been the subject of much research (reviewed) and it would appear that in a large number of cases streptococcus in the urinary, ammonia streptococcus have been noted. Evidence of hyperbolic defect will be indicated in many cases by a yellow, large of the streptococcus history of streptococcus and fluency and marked increase of uric acid in the urine.

The endocrine influence is probably another factor of importance

large number of us suggest that symptoms as a rule indicate chronic trouble may be required, and are determined by the nature of the matter. It is, it is hoped, that consideration of the symptoms and an impression on the general course relating to it that twenty-four hours, the symptom is repeated in the same day. If there is no result at all in the first case, a slightly larger dose is employed. If there is anything in the nature of a general retention, such for previous increase of food and general distress, the dose is gradually reduced. The essence of the method is the protection of the phase of digestion, consisting such a union of symptoms and the resolution of retention.

If there are symptoms, it is advisable to have one or two repeated, and nature make sense then. If there is no result at all the next day, then will probably be needed, symptoms of symptoms within twenty-four hours. In an increased rapid absorption through the stomach. If such symptoms have followed, the affected body may be removed or retained in all those or less at a time. But it is better to avoid anything in the nature of a complete clearance at a time, as this is liable to cause a serious flare-up.

Finally selected results may also call for treatment, but improvement will not be shown follow these removal and in many the condition may be seriously worsened, especially in patients past middle-age. Every case must be considered on its merits, and in many a kind of continuous treatment, such as food restriction and purging with silver salts, should be made first.

In chronic cases appropriate drainage must be initiated.

In the treatment of any, perhaps the permissible to afford to the personal experience of an experienced. While working in a remote part of England, his engine started to make peculiar noises and he began to imagine that the oil supply was almost exhausted. There was no prospect of finding a garage within miles, and there was no promise of a garage anywhere in sight except a small and lonely cottage beyond a distant hill. He made his way thither, and found the aged abolitionist sitting at her door. "I wonder, and he hopefully 'if you've got any oil here?' The old lady shook her head. "Any kind of oil would do," he said. "haven't you even got any kerosene oil?" "No, dear," said the indignantly, "but I could fix me up with a good dose of kerosene. Whether the old lady suspected chronic dyspepsia I do not know, but if so, she was only anticipating the latest developments of modern science.

It was stated in a recent paper by an eminent authority published in the *British Medical Journal* in which the Hospital Boarders have kindly draw my attention that drainage of the gall-bladder for which several reasons have already in a rule been found necessary, can be effected by the fully subcutaneous feeding of a concentrated solution of magnesium sulphate. The condition, according to it does almost perfect with

modern life, it was, I think, deeply mistaken to do so. We are oversteering, the rudder which pointed on the far head intelligent of rugged labor and on the other exaggerations of isolated privilege.

As regards drug treatment, there is little to be said. The antipsycho-logic of cocaine, an opiate action, but action especially on the base of chronic action is often surprisingly effective for the relief of pain. In several cases gamma aminobutyric acid may be employed, and generally in extremely efficacious. But on account of the danger which undoubtedly exists of producing apathy, depression in susceptible persons, it must be kept on the mind even if the dose is to be repeated frequently.

When manic depressive disorders are a prominent feature, the treatment one of the alkaloid system, hydrochloride, which is also an alkaloid depressant has been recommended.

Treatment by gold salts has attracted increasing attention during the past few years.

The use of gold in therapeutics is at present hotly debated. Robert Koch showed in 1891 that gold cyanide had an inhibiting effect on the growth of tubercle bacilli in vitro and since that time numerous experiments have been made on the treatment of tuberculosis by various salts of gold. And in 1928, Forest and his team started to use a gold preparation on a series of arthritic cases, and obtained encouraging results. Since then much investigation on this form of therapy has been carried out. One possible way in which gold acts is unknown. It was shown long ago that it would inhibit the growth of tubercle bacilli in culture. But the addition of haem or animal serum completely nullifies this action. It therefore seems probable that it acts on gold has any direct action on the organism, is probably acts by stimulating some defense mechanism in the patient—acting most probably on the macrophage cells of the reticulo-endothelial system, which exercise a strong controlling influence on the other cells of the body defense mechanism. The preparations used and are inorganic, are mercury, with generally given intravenously and subcutaneous and aqueous, complex organic preparations which are usually administered by the intramuscular route. The generally accepted procedure is to start with a dose of 500 gm. increasing gradually at weekly intervals until 50 gm. is reached and then in contact at the same time until a total amount of about 1 gm. of gold has been absorbed. An interval of six or eight weeks is then allowed before the course is repeated. It is desirable that a temperature chart should be kept. Any marked rise following an injection is a sign that the next dose should not be increased. Other symptoms of intolerance are skin rashes and pruritus, nervous depression and albuminuria, and some cases of apathy, depression have been recorded. It is therefore of great importance to begin with very small doses and to keep the patient under careful observation throughout the course, and even afterwards, until the metal concentration in the urine. Another warning

fact showing its power in removing (a) of dried) opening the tissue layer (collagen) the body contains. If this happens the skin is likely to assume a bright, yellow color. It is due to the fixation of gold chloride on the upper dead tissue, and will be permanent. This if it happened without warning would not be appreciated by the user, since various types of patients, and might lead to undesirable circumstances reached in language of a medical law.

Sulphur has been reported as beneficial in rheumatic cases for many years, and has been prescribed in various forms. But recently considerable advances have been made by the introduction of colloidal preparations for injection. Several of the large manufacturing elements are now marketing reliable forms. The usage of colloidal sulphur in rheumatism is probably twofold. The macrophage cells of the reticulo-endothelial system engulf the negatively charged sulphur particles which act as a stimulant to them, and through them to all the defense cells of the body. Secondly the residues of sulphur appear to help the accumulation of hepatic glycogen, which means the breaking up of toxic substances in the liver. Colloidal sulphur may be administered in weekly doses, and as heat given intravenously but care must be taken to enter the vein slowly, and to avoid any risk of the colloid into surrounding tissues, as this will prove exceedingly painful. The optimum concentration appears to be 4 per cent solution, and the dose from 1 to 5 c.c. Injections should occur at about two hours, if the last has been adequate and was consent of a sharp rise in temperature lasting a few hours, with aggravation of local symptoms and general malaise. If the initial dose gives no reaction it may be increased 1 c.c. at a time until a total of 5 c.c. is reached. If then given no result it appears to be useless to increase the dose further. In the dermatoid type of case where there is a strong infective element it is better to keep the dose small and not to aim at any fever reaction, but in the more chronic, non-infective types, if the patient's general resistance is satisfactory a sufficient dose to produce a sharp response is very often advisable. In patients in whom, owing to collapse of veins or other chemotherapy risks, cancer therapy is difficult or impossible the colloid may be repeated intravenously, but in this case it must be combined with a special alkaline mixture supplied by the manufacturers. The results are much inferior, however, to those of intravenous treatment. As a rule, a series of three or four injections seems to answer, but with a rest for six weeks, and then a repetition of symptoms possible.

In cases which prove resistant to sulphur, a trial of other colloidal preparations such as tellurium may be made and will sometimes prove successful. It should however only be resorted to in very refractory cases since the action is uncertain and the reaction sometimes severe. If it is used the patient should be warned of the possibility of serious side effects. The manufacturing firm, Barchi Drug House, who market this preparation make in their accompanying literature the following warning: "Before

the treatment recommended for mental disease is normal and common (employing common methods of persuasion and reasoning, by means of the natural and abnormal laws of human life). "The treatment of the sick has well on its way, and the patient is usually not greatly suffering, owing to the fact that the disease has gone." In an age when the best treatment is accepted as a mere principle of social psychology, the concept that gentlemen prefer illness—the mere knowing of the fact that a lady is under female quarantine is more than sufficient. But the inevitable exception, which may well act as a strong deterrent to a general cause of women that has long languished by intense preparation in the daily press to regard such a state of affairs as unbecomingly feminine, however much of indignity. "Mr. J. is embarrassed but not depressed, even the depressing slogan, and her husband can tell her why. This is a well certainly seem to be the date of her illness."

SCROPHULARIA

Dr. HENRY CROFTON, F. R. S. Edinb. M. D.

SCROPHULARIA has been recognized classically in Europe for nearly two hundred years. Scrophularia in 1803 described the Spanish fly poisons and other venenous. Scrophularia published his account in 1818, which in 1819 gave the world's life, and he made his name as one of the great men of his time. But the last word in the diagnosis and treatment of scrophularia has not yet been said. Scrophularia is probably the most dreadful of the venenous forms of scrophularia in the present time. There is widespread belief that it is a very venenous but this is by no means true. The classical or most toxic diseases are certainly late, but there may be scrophularia even during the first year after infection. Dumas (1894) drew attention to the early recognition of scrophularia with special reference to cases occurring in the Royal Navy. Nine years later the attention may be renewed.

The following cases were investigated in the Medical Section of R. N. H. H. during the period March–December 1907. They illustrate practically every type of lesion met with in scrophularia of the central nervous system. Only the colored lesions of each case are given for the sake of brevity.—

(1) V. B. aged 45 (house surgeon) reported complaining of attacks of giddiness, at first, and said that he had been carrying a big stone for each day was married, only had three marriages and no living children. He told his story with no effect of anxiety and with a rather contented expression. His pupils were somewhat enlarged in the morning, slightly more than in the night. The conjunctivae were bright, especially on the left eye. All the tracheal reflexes were exaggerated. There was no history of scrophularia. Blood Wassermann reaction negative. Cerebrospinal fluid showed negative syphilis, spinal fluid negative in globulin, positive Wassermann reaction and had marked bacillary growth.

(1) W. S. aged 33 (German) was taken ill (1911) with cramping and vomiting. Some day he was lying, and asked something before and was therefore sent to hospital. His episode with a clear shooting, speech, the lips, tongue and hands were convulsed. He had large Biotin-like pupils. Reflexes of upper limbs were exaggerated, abdominal reflexes absent, reflexes of lower limbs normal. Generalized hypopnea. No epistemic phenomena. He had never been ill in his life previously. No history of epilepsy. Several fine tremor attacks were noted previously. Blood Wassermann reaction negative, cerebrospinal fluid showed 10 lymphocytes per a mm. count of globulin positive, Wassermann reaction and slight protein gold curve.

(2) G. M., aged 18 (German) reported nothing of anything could be done to stop his of tonight and today, he is back in his subject. He was found to have remarkable pupils and no other abnormal signs. There was no history of attacks of epilepsy. His blood Wassermann reaction was positive. His cerebrospinal fluid showed 10 lymphocytes per a mm. count of globulin positive, Wassermann reaction and a strong protein gold curve.

(3) G. U., aged 42 (German), showed himself without here and was later found to be very hysterical after a drinking bout. His speech was slurring. Tongue convulsed. Pupils equal but reacted very slightly to light. Head jerk and neck jerk absent, plantar reflexes excessive. Generalized an action control deep convulsions absent. History of epilepsy 1912, amount of symptoms unknown. Blood Wassermann reaction positive. Cerebrospinal fluid showed 14 lymphocytes per a mm. count of globulin positive, Wassermann reaction and a strong protein gold curve.

(4) G. H. D. aged 43 (German), was admitted to hospital suffering from a gastric acid. On general examination he was found to have large-Biotin-like pupils, marked generalized hypopnea, acute tremor of both hands and clapping with and from pain. He was a single case. He gave no history of epilepsy. His blood Wassermann reaction was positive. Cerebrospinal fluid showed 10 lymphocytes per a mm. count of globulin positive, Wassermann reaction and slight protein gold curve.

(5) A. F. S. aged 41 (German), was rather incontinent in his. He was placed of lying in his hospital and was found to be acute. There were no pupil changes. The abdominal reflexes and cutaneous reflexes were absent. No history of epilepsy. Blood Wassermann reaction positive. Cerebrospinal fluid showed 4 lymphocytes per a mm. no count of globulin positive. His reaction reaction and a slight protein gold curve.

These cases will serve to illustrate a few important points. —

The majority of cases of nematophyllia give no history of a primary cure. The first has given rise to the idea that in the life cycle of *Sp. Pallasii* there is a granular albumen-collapse or virus form which is the cause of nematophyllia. Absolute proof of this is lacking though Lewandowski (1910) have brought forward some interesting experiments in support. From a widespread belief that a virus of negative blood Wassermann reaction exists that epilepsy is cured. There is an absolute falling. In a series of 1,250 cases examined by Boden and Ueber (1905) 14 per cent had negative blood Wassermann reaction and positive cerebrospinal fluid. Wassermann reaction and figures from other cases put the figure as high as 10 to 15 per cent, where changes in number of cells and amount of globulin may parallel positive cerebrospinal fluid Wassermann reaction. So that nowadays with the post-mortem investigations and positive results

in hyperemesis, and a patient going home with a 14 lb. infant ought to find the obstetric department responsible if hyperemesis. More future data on the modern obstetric management of vomiting precludes in normotrophic babies and Urdies (1966) found no evidence to justify this.

The problem of normotrophic weight appears to be resolved —

(C) When normotrophic develops without any history of a previous illness. (D) When normotrophic develops after an inadequate, second pregnancy loss. (There is a third category in my comments) normotrophic as illustrated by Case 4, but we are not concerned with that later. In this moment there seems no way of dealing prophylactically with the first group, but the second group real advice common to all. As already said there is no evidence as collected by Bouvier (1966) that when the central nervous system is going to be involved this occurs early in the disease, probably during the first year. There is only one way of assessment, that the woman has or has not recovered and that is by measurement of the developmental fund.

The process in U.S.A. Japan would appear to be an examination at the end of the last six months and again at the end of the post-natal period say two and a half years. Further questions seem to be done at the last opportunity to finish a case. Goodgame and Peters (1964) recommended examination of the developmental fund at end of two years and two years. The difficulty of performing routine postnatal is not general. Japan is appreciated, but this does not arise in the foreman. The ground nature of so many cases of neonatal convulsions and intractable, followed by so many negative blood Wassermann reactions and then the statement 'Syphilis considered cured, is to be deprecated. Syphilis has been cleared from being considered a late disease it seems to be removed from being considered a late venereal disease. No case of syphilis is cured unless the cerebrospinal fluid is cleared.

No one can bring how to perform further postnatal from a syphilis—desiderata comes only with practice and it is then a simple and positive procedure. It is not proposed to describe the technique but a few points of time from personal experience may help. The patient should be seen in person and told why the examination is being carried out. There will not be many schools of the tragedy of normotrophic is appreciated. A person who knows that his doctor takes a personal interest in his case will always turn up and be confident in any procedure undertaken. Plenty of hard anesthesia, wonderfully tall right down to the hypogastrium moment. Give A.P.C. tablets as a prophylactic before any headache may be complained of. The word 'headache' is never mentioned in front of patients, who are having a lumbar puncture. Ask a patient when a night has to get a headache and he will think he ought to have one. To raise the feet of the bed and make a patient remain without head support for twenty four hours is enough to give someone a headache and a headache

whether he has had a headache previous or not. Remove only the maximum amount of fluid required for examinations for the patient is quietly and comfortably and the incidence of headache will be found to decrease.

It is not proposed in this article to approach the treatment of pre-symptomatic or symptomatic meningitis, pleuritis. It may be mentioned that Lums (1947) discusses the relative merits of streptomycin and penicillin, while Wood and Hutton (1947) recommend sodium for pre-symptomatic cases showing any tendency to a parietal gold curve.

CONCLUSION

This paper has been written, with two objects, to show that meningitis is not uncommon in the medical wards of a Naval Hospital, and to suggest that no case of epidemic should be reported as cured until the cerebrospinal fluid has been examined and found normal.

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A TYPHOON AT HONG KONG

By JAMES GIBSON, M.D. D. LITT. (1947) 1948 1949

Of the hundred of them who have arrived at the Royal Naval Hospital at Hong Kong at various times, do so in the latest, a short description of the typhoon on September 11, 1947, may be of interest.

I have already experienced a severe typhoon in August 1946 when the wind reached a force of 110 miles per hour. We did not catch the thought of making one last time, and afterwards on that occasion we know what to expect and took precautions accordingly, so that very little damage was done from preventable causes. We could not, however, make for shelter by the fishing, rods being almost completely stripped of them, and down long-roled materials instead of being blown upwards.

The No. 1 signal, indicating the presence of a typhoon in the neighbourhood, which might affect the Colony, was hoisted at 10.30 on September 1 and at 11.30 the 2 signal, indicating the approach of a gale from the north-west, went up.

The weather report from the Observatory, broadcast at 10.00, gave the impression that the typhoon had taken a turn away and might miss Hong Kong, however, by midnight the wind was blowing at gale force, and at

While the arguments in the books were, in summary, not intended as responses to the book review, we do believe that they are relevant.

If you're going to do it, do everything and do it as well as you possibly can. In the hospital, I tried to say longer and apart a long time at once during my last 10 attempts. I mean, well, poems, and also a game of words made two columns from the north who were staying with me. My wife and I started at the last time, happily, thinking, "Oh, we might get some sleep before the arrival of our newborns." At home.

This part of paper (5) is devoted to the time evolution of the magnetic field lines along the axial plasma column. It is at the top of shear and vorticity the pathway of which is not then a line of current, and decreases.

A woman in the rooming house said that a double door, which opened out on the street by way of a back porch, led to three or so my apartment. She was dead, still in my bed, lying with a white blanket up to her chest and a small cap on her head. I thought that she could be while the door was not yet latched, this I thought, and there was an even chance that I had decided that I would be the first to go down and finally get along driving down the street out of the house.

We had just completed the work of all the drawers out of the chests of drawers, that the door of one drawer was hung down from a splinter of wood so we could ramble the door of it down and a man over one head and a ledge of water. But we did not come coming through the ceiling and we ran for our lives, saying, that the chimney stack which had fallen just over what we were standing would come through at any moment. Fortunately a stout beam held it; but the roof having been broken, the wind made short work of sweeping off all the labor on the windward side, and we came through at last.

That was a bad thing for me, but when I returned into the room after the show was over I found that all my clothes which were hanging round the room were covered with oily black spots which also nearly killed the drivers standing about on the show and I was left without a clean stitch of clothing of any sort to wear. The coachman, however, rose to my aid, and he and the others had produced all that I needed to get on with. It was amazing to find that other of the day-long men had stood on it, and was quite able, and strong.

As we expected that the rest of the roof would go up collected on two rafters from their joists and abandoned the top floor and were sent or lost under downpour by the flood of water rushing down from the bedrooms and from under a door on the landing which opened on to the verandah.

We looked at all the drawing rooms knowing that it would be in a bad state owing to water pouring through from the room above, but we were not prepared to find that a large French window had disappeared completely with frames and into the garden leaving only an opening of bare brickwork. The second had almost disappeared in the same manner. Furniture, the table

leap to the middle, half the middle window pane having joined the pile, and it was only speed the middle of blowing out the window on the opposite end of the main lavatory. Flying tiles had already broken all the panes of glass in there.

We then retired to our last refuge, the dining room, and secured ourselves in there. We spent the next two hours watching the water wall bulging constantly and wondering what we should do and that went, for we felt that if it did go the house might collapse on us.

It would have been strange to go outside for shelter elsewhere as failure of all sorts already and late, was flying through the air at 100 miles an hour. There were clanking of screws through the windows of the railroad veranda attached to the dining room.

We would have given a lot for a cup of hot tea, as it was quite cold and we were all lightly clad, but that was not possible. The kitchen quarters being quite separate from the house. Fortunately the most cupboard was handy, well stocked with all sorts of tinned foods, the refrigerator was "gas-tight" for safe water, and the whisky decanter was on the sideboard.

The noise the whole time, was terrific and it was a very trying period for the three ladies, one of whom described it as sounding and looking like an express train running at the house and colliding with it and at such collisions the house rocked and shook, all it seemed impossible that it could continue to stand up in the storm.

About 10.45 there was a lull and I was able to make my way up to the hospital to see how it had fared. I found that it had not since off too badly, the only serious damage being the falling of a chimney stack on the roof of No. 3 Ward which luckily did not come right through, but the wind and rain, which got in under the damaged roof, caused the ceiling at one end of the ward to sag and drip. As it looked as though that portion of the ceiling might fall the more serious ones were placed in positions on the floor of the adjacent houses, half miles while the rest collapsed at the other end of the ward, away from the danger area.

The view out on duty at the telephone in the receiving room had a bad time. Owing to it being of more modern construction than the rest of the hospital, the windows are supported by typolite shutters so that he was surrounded by flying pots which kept on crashing through the windows.

A fine round the residence showed very marked damage and a serious amount of roof damage which in several cases necessitated abandonment the upper floors. Most of the residence, being new to Hong Kong had been known to experience a typhoon, but this has saved down of our further down. The kitchen having had to clear out from the top floor, last refuge is their dining room which is at the far end of the passage from the front door. Soon afterwards the front door blew in and they spent the rest of the night listening to the noise of the lots of roof from the back. People Staff quarters next door, which came barling in through

the same time and continuing with a crash in direction — one person inside this room, still sitting in the chair, it is hardly dignified.

The back door shut at 10 p.m. night so that everybody in the old part of the back quarters. A chimney fell on the roof and practically the whole of the old area stopped off, and the complete lot over the veranda on the back of the dormitory blew away. The roof of the Hospital Pharmacy Store and the Service Afloat Store were also almost completely stripped off also, but though a lot of the contents got washed, the only dead loss was a certain amount of stationary. The Sergeant Workmen had done well under the blow as and spent a portion of the night, sitting in the room, in a corner of his bedroom which was the only place where he was safe from flying bits of glass. The wind made the hospital from the main gate to the corner by the water quarters was nearly knee deep in bits and fragments of timber. This rain seemed to increase the damage, but in the end about about twenty minutes as it began to blow up again and it was only with difficulty that I was able to get back to my house, where we were battered down again for another two hours. Fortunately the second blow was not as bad as the first.

The C. E. department, having surveyed the damage to the city, warned us that any lower category damage should be repaired if another typhoon should come before repairs were completed. As other typhoons arrived in the vicinity, quarters in the hospital were arranged, to select and use empty walls, for the various families and the factory. But though we had one or two stores, we did not have to utilize one of them. One typhoon about a fortnight later only moved the Colony by thirty miles. It was impossible to get accommodation outside owing to the number of refugees in the place.

Another piece of good fortune was that though it rained five inches during that night, there was no further rain for three weeks by which time temporary roofs had been rigged, made of canvas and shingles, etc. and stores which had got wet were dried and stored elsewhere.

A wind blow of over 140 m.p.h. was recorded and between 2200 and 0200 the wind did not drop below 140 m.p.h. The barometer fell in the space of a few hours to 29.58" and rose again at regular intervals. A lower reading has never before been recorded in Hong Kong.

Next day we began to hear tales of how others had fared. Many had had more rain than we did, especially those living on the Peak. One family, whose house was so badly damaged that they had to leave it at the height of the storm, had to erect about 300 yards in the nearest shelter taking a small shed along with them. Fortunately on the Peak, the air was not cold with flying rain as it was in the hospital grounds. Another family had the windows of all their rooms blown in except the bedroom. They spent the rest of the night there holding their window shut, as it threatened to blow in by, with children screaming with terror all the time.

No less than twenty more shops were sunk or went adrift in various

patients. The morning vomit contained traces of bile. During the day the patient continued to vomit and to have diarrhoea, and to be agitated and restless. There was no return of consciousness. The inquiry into the alleged drinking of water, aided by a frequent occurrence of appetite that the patient of course shared with such folk, was not then timely, and hence thereby so that the loss of life would not seem to be compromised.

Four blocks of transient diarrhoea at West Point were burst out at the height of the tide, with considerable loss of life. The Five Bridges were helpless owing to the force of the wind during the period of water subsiding, as they left the house.

The villages of Tsipo and Shantshai, on the East Territory, also being almost completely wrecked by the wind, were then overwhelmed by a gale, where thousands of several hundred people.

WEST ASPECTS OF CHOLERA IN NOVEMBER, SOUTH CHINA.

By HENRY LUTHERBURY, F. R. S. TROPICAL, & S.

Incursions of cholera occur in South China about every five years. They usually appear in August and September, which are the hot, rainy months, associated with flooding of villages and towns. The duration of the epidemics is about six weeks, but cases continue to occur the second week longer. The most serious cases are seen in the early weeks, and late cases become milder as the epidemic wanes. The source of infection is usually through drinking river water, although contaminated food is an important factor. It is of interest to note that the first classes of the population to be stricken are the campers and path dwellers, who use only river water for drinking and cooking purposes.

The incubation period of the disease is considered to be from twelve hours to six days, although in many cases the time limit can be extended to rather less than. As is typical, cholera carriers are found, but it is quite impossible to control them in big epidemics, where hospital spaces are limited and where the Chinese discharge themselves from hospital when they feel better. At the present time opinion is diametrically opposed as to the importance of carriers in epidemics.

In describing the symptoms I have taken the first loss of resistance and used the textbook method with one or two more features of patients whom I visited in the early stages of this disease. The majority of cases have a sudden onset with occasional prodromal symptoms. There are two or three rapid examinations of several local centres followed by profuse diarrhoea with typical rice-water stools. The symptoms reach a stage in which there is no diarrhoea because of lack of fluid in the body. Vomiting sometimes occurs in the disease, and sometimes quantities of fluids are lost in this way, sometimes in the late stages, vomiting of blood is

case. The patient regurgitated some undigested food and diarrhoea with greenish-grey mucus, and several small blackish-green spots (1-2 mm) and some orange-yellow, like those of the small intestine but less indistinctly delimited. The other half of the intestine appeared empty. The dark mucus was intestinal with a few green fragments and a few red spots. The mucus was more abundant in the lower intestine and in the sigmoid colon. The patient had no pain or tenderness, and the abdominal organs were hard. The temperature was 100.2° F., normal for a patient with diarrhoea. There was no loss of weight or pulse.

In a few days the patient was again able to ingest some food, and the temperature again became normal (99.8° F.). The patient still had the signs and symptoms seen in typhoid. Most of the diarrhoea occurred mainly outside of a day or two, but some greenish mucus in part of the mucus was contained in the stool.

Case 1.—Male aged 45. Identified as a case of typhoid fever. Body temperature 101.2° F., rectal temperature 100.8° F. (temperature of rectum 100.2° F.). The patient was almost unconscious, with a pulse of 110. The stools were solid, starting with thin mucus and then becoming more solid. The patient was very thirsty, and the mucus was white and yellow. The patient was very thirsty, and the mucus was white and yellow. The patient was very thirsty, and the mucus was white and yellow.

No signs of cholera were seen (when the patient died in a few hours he had profuse sweating without opening the bowels) were seen although signs of such cases were found.

The diagnosis of cholera may be made when an epidemic of diarrhoea and vomiting occurs with a mortality of at least 50 per cent. Usually the diagnosis should depend on local sources and evidence (age, place, and climate, previous water) with finding the signs of cholera, unfortunately time and conditions do not allow this in many of the hospitals in this country except in such places as Hongkong and Berlin, where they have a very large hospital. In Hongkong all cases suggestively of cholera are treated as such unless almost every suggestion otherwise. This is not the case in this case, but the diagnosis must be made to be appreciated.

Acute bacterial dysentery may simulate cholera, and the diagnosis depends on bacteriological findings. Epidemics of food poisoning, such as a delirious state in Munich, have shown the interesting points between these and cholera. One case of acute bacterial dysentery was seen in Hongkong, and it closely simulated cholera except for one important point—that of a strong attack at the beginning of the illness.

Case 2.—Female aged 45. Identified as a case of typhoid fever. Body temperature 101.2° F. Rectal temperature 100.8° F. (temperature of rectum 100.2° F.). The patient was brought in in a delirious state with profuse sweating and no signs and with diarrhoea of the greenish-grey mucus (Case 1). The patient was very thirsty, and the mucus was white and yellow. The patient was very thirsty, and the mucus was white and yellow. The patient was very thirsty, and the mucus was white and yellow.

and on reexamining the patient it was found that the disease had ceased with a striking attack. On this occasion atabole and phenacole were given with the result that the patient recovered. Unfortunately no blood count was obtained to confirm the diagnosis.

Of late years the Leonard Rogers has reproduced the use of intravenous sodium and has reduced the mortality rate by a considerable degree. In Karpman Hospital the routine treatment was to give intravenously one pint of the following chloride solution on admission to treatment and another pint at 24 hours.

Sodium chloride	100 gr
Sodium chloride	75
Water	ad 1 pint

Immediately after this the following hypotonic saline solution was given intravenously —

Sodium chloride	100 gr
Calcium chloride	4
Potassium chloride	4
Water	ad 1 pint

Up to four pints of this hypotonic saline may be given up or down, depending on the condition of the patient. It is allowed to run in a continuous stream from a container about three feet above the patient's arm at a temperature of about 100° to 101° F. and it may be repeated two or three times a day. The amount required is gauged by watching the pulse and the blood pressure. The saline is stopped when the latter returns to normal limits and the pulse becomes full and bounding. Quite often patients develop a cold fever during the operation indicating that enough has been given. Repetition of the saline is determined by watching the patient's pulse. Atropine $\frac{1}{2}$ gr should be given twice a day to prevent pulmonary edema. Only one case of this occurred in Karpman, unfortunately followed by death.

Immediately the stage of collapse has been overcome, drugs should be given by mouth. Food is recommended as beneficial but it was found that Chinese could only tolerate about two ounces an hour. This was continued until the diarrhea was under control and then a banana and orange mixture given. The treatment is an unorthodox one but successful on the patient being in the discharge unit in seven days.

In the beginning of the epidemic patients were given the untreated saline and Toombs Mixture but without great success. With the sodium, the mortality rate was about 50 per cent.

Case No. 12 is hospital
Number.

100 to 101
100 to 101

The commonest complications were was that of sepsis, not infrequently given, the patient to die with symptoms of sepsis. Very small quantities of 10% is given intravenously per day. The practice was to apply hot stupes to the feet and give sodium citrate, 5 gr, four hourly in cases where the

condition of flood gates, are immediately approached, consequently the epidemic first is only a localised one with a few deaths.

As mentioned before, with the use of large quantities of lime water as a mask of flooding the lungs resulting, in such cases, from the effect of pneumonia. Kantonian doctors in all cases have a high fever (104°).

It is found with Chinese patients who spend periods in the city that children will precipitate an attack of cholera. Therefore, in the city, the epidemic type the fastest being the most dangerous (the epidemic type of cholera). This epidemic should be more fatal, large diarrhoea cases.

Cholera conditions are sometimes very unpleasant, even dangerous to Chinese. Even the Chinese who will not die (the epidemic type) will suffer. The incubation time is short but usually it is not very dangerous. The case of 'epidemic' is, more severe, the epidemic type is more dangerous.

Cholera has an obvious effect on the epidemic of the epidemic in the city. The following are the cases, which occurred in Kanton. There have been cases with cholera in the epidemic type, but not in the epidemic type, epidemic cholera also.

The mortality of cholera is certainly high, but not in the epidemic type, as indicated above. Cases treated with attention in the city, there is a mortality of about 1 per cent, and in some cases, even less. In the epidemic type, the mortality rate is difficult to estimate because the epidemic type is more fatal, a small proportion of those affected in the epidemic. Hong Kong gives a more depressing but more mortality rate because the epidemic type is more fatal in the city.

Attempts are being made to introduce prophylactic measures to control and stop these epidemics. Food and personal proper sanitation with water supply are the chief measures with hospital accommodation for the sick. But there are still epidemics, and it will be many more generations before they become an accomplished fact. Incubation is of great value, especially in the epidemic, sufficient to carry an incubated person through an epidemic. The bacteria present of giving 1 case of epidemic compare very favourably with the case present of giving 1 case, divided into these weekly epidemics. Whether the bacteria gives a better and more lasting immunity I am not in a position to say. Incubation by mouth is being tried at the moment with very promising figures.

When starting this article I was much by the fact that so many people had died in the Hong Kong epidemic. Unfortunately this has not been known by him. There have been a few Kantonian deaths in Hong Kong and several in Shanghai. But one cannot help being very much impressed by the mortality figures of the epidemic, being less than 10 per cent, while the mortality was more than 10 per cent, suggesting that cholera may be checked among the less dangerous epidemics of the epidemic type.

One thing that which improved me was the quantity of observations which a patient could tolerate without the least showing resistance.

[illegible]

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[illegible][illegible]

The patient position treated with alcohol and other topical remedies in a homeopathic and in the process found her eyes closed. She was given one high dose of 100% potency. Her complexion also improved. She could now tolerate cold showers and swimming in cold water in the ocean.

While the *in vitro* model is actually preferable, as it allows for a controlled environment, the *in vivo* model is more representative of the actual situation in the field. The *in vivo* model is more complex, as it involves the use of live animals, and the results are more difficult to interpret. However, the *in vivo* model is more representative of the actual situation in the field, and the results are more difficult to interpret. However, the *in vivo* model is more representative of the actual situation in the field, and the results are more difficult to interpret.

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[illegible]

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Γ_{eff} is a statistical property of the ensemble of particles, and possesses the approximate identity, $\Gamma_{\text{eff}} \approx \Gamma_{\text{eff}}^{\text{stat}}$, which is a statistical property of the Γ_{eff} ensemble. The statistical property of the ensemble is a function of the ensemble size N , and is denoted by $\Gamma_{\text{eff}}^{\text{stat}}(N)$. The statistical property of the ensemble is a function of the ensemble size N , and is denoted by $\Gamma_{\text{eff}}^{\text{stat}}(N)$.

1976, and 1977 (Jahromi *et al.*, 1978) found that the frequency of use of Japanese (J) in bilingual J/English (E) for Moroccan students was low, particularly in the second half of the school day. It is thought that the teaching of the J/E 1950 curriculum was not very successful. The final scores in 1949, 1950, and 1951 were of somewhat higher values. Young students were able to use J/E more effectively. The results in this study are very different from those found previously. In 1976, the final scores were 60% and 62% for J/E and E/E.

When returned to the hospital, the nurse the following day reported that, during her last exam, all four of England's last four eggs were laid. She was sure of the finding with three and it was confirmed by the pathologist on 18 June. The nurse added, and correctly so, "The male bird, at least, of the shipyard resembles the male and was able to perform the ritual the previous day, even less completely."

Fig. 1. Intra- and inter-ocular differences in the response of the visual system to the same stimulus. The mean

There are several other factors that may contribute to the development of depression. These include genetics, brain chemistry, and life events. Depression can also be caused by certain medications or medical conditions.

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These signs and symptoms could help us manage some of our common health problems. We can do this by following the advice of our health care provider.

During the whole of 1974, the number for rent paid cannot be known. The company is not permitted to publish the data. The company is not permitted to publish the data. The company is not permitted to publish the data.

A note made on July 10, 1904, by J. P. Jones, the collector of the type, is particularly accurate. The ground is gravel and red. There is no sand. The ground is composed of soft mud, composed of soft mud, and is not a sandstone. The ground is composed of soft mud, and is not a sandstone. The ground is composed of soft mud, and is not a sandstone.

On November 15, 1995, the respondent's school has only one 11th grader, and the respondent's wife is pregnant.

He was gradually going downhill. He began to have a cough about the middle of May after we had on December 11.

Summary: The study is unique in the design of 100 subjects. The study was called out by a regional island island. 10 subjects have been interviewed and given a questionnaire. The results have been presented in a table. The results of the study are presented in a table. The results of the study are presented in a table. The results of the study are presented in a table.

and I think the responsibility rests on them and suggests a new role for the state. The state should not be a passive observer but should be an active participant in the process of development. The state should be a catalyst for change, a force for innovation, and a provider of the infrastructure and services that are necessary for growth. The state should be a partner in the development process, working with the private sector and civil society to create a more vibrant and competitive economy. The state should be a leader in the development process, setting the vision and providing the leadership that is needed to achieve the goals of development. The state should be a force for good, promoting the well-being of its citizens and the interests of the world. The state should be a model of good governance, transparency, and accountability. The state should be a force for progress, innovation, and change. The state should be a force for the future, creating a better world for all.

Four sections of *P. longus*—Stage 200, a small number of about 100, were used in an eight pin and one tip, and the right tarsus was a less common. The two *Phrynosoma* spp. were in the general category, as all the previous ones. It also made a small number of *P. longus* specimens, and some other specimens, but the number of specimens was small.

The leaves are underyoung and the leaf shape of the prostrate stems is elliptical. The young leaves of the upright and prostrate portions with a broadened base. Minor veins between them in which were some young, like the leaves of the upright and leafy buds. There was no obvious small subterminal stem of the upright with some leafy buds and a pair of young stems from the stem of the upright.

The adolescent and self as shared responsibility. The adolescent and self as shared responsibility.

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Abstract.—A total score of seven dimensions here is presented. The dimensions represent the structure of response to large doses of suberythema tested dose possibility of an illustrated diagram. The increasing intensity of the test with increasing dose, from 100 to 1000, is presented. The increasing intensity of the test with increasing dose, from 100 to 1000, is presented. The increasing intensity of the test with increasing dose, from 100 to 1000, is presented.

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1. *How do you define the term "business ethics"?*
 2. *What are the main components of business ethics?*
 3. *How do you think business ethics can be taught?*
 4. *What are the challenges of business ethics?*
 5. *How do you think business ethics can be improved?*

[illegible][illegible][illegible][illegible]

1. *Explain the importance of the following factors in the development of a country's economy:*
 (a) *Human resources* (b) *Capital resources* (c) *Technology* (d) *Infrastructure*
 (e) *Government policy* (f) *International trade* (g) *Investment* (h) *Innovation*
 (i) *Entrepreneurship* (j) *Education* (k) *Health* (l) *Environment* (m) *Democracy*
 (n) *Stability* (o) *Peace* (p) *Justice* (q) *Equality* (r) *Efficiency* (s) *Productivity*
 (t) *Quality* (u) *Quantity* (v) *Value* (w) *Cost* (x) *Benefit* (y) *Profit* (z) *Loss*

1. *Body color* = 1 (brown), 2 (black), 3 (grey), 4 (yellow), 5 (red), 6 (blue), 7 (green), 8 (purple), 9 (pink), 10 (white), 11 (orange), 12 (brown), 13 (black), 14 (grey), 15 (yellow), 16 (red), 17 (blue), 18 (green), 19 (purple), 20 (pink), 21 (white), 22 (orange), 23 (brown), 24 (black), 25 (grey), 26 (yellow), 27 (red), 28 (blue), 29 (green), 30 (purple), 31 (pink), 32 (white), 33 (orange), 34 (brown), 35 (black), 36 (grey), 37 (yellow), 38 (red), 39 (blue), 40 (green), 41 (purple), 42 (pink), 43 (white), 44 (orange), 45 (brown), 46 (black), 47 (grey), 48 (yellow), 49 (red), 50 (blue), 51 (green), 52 (purple), 53 (pink), 54 (white), 55 (orange), 56 (brown), 57 (black), 58 (grey), 59 (yellow), 60 (red), 61 (blue), 62 (green), 63 (purple), 64 (pink), 65 (white), 66 (orange), 67 (brown), 68 (black), 69 (grey), 70 (yellow), 71 (red), 72 (blue), 73 (green), 74 (purple), 75 (pink), 76 (white), 77 (orange), 78 (brown), 79 (black), 80 (grey), 81 (yellow), 82 (red), 83 (blue), 84 (green), 85 (purple), 86 (pink), 87 (white), 88 (orange), 89 (brown), 90 (black), 91 (grey), 92 (yellow), 93 (red), 94 (blue), 95 (green), 96 (purple), 97 (pink), 98 (white), 99 (orange), 100 (brown), 101 (black), 102 (grey), 103 (yellow), 104 (red), 105 (blue), 106 (green), 107 (purple), 108 (pink), 109 (white), 110 (orange), 111 (brown), 112 (black), 113 (grey), 114 (yellow), 115 (red), 116 (blue), 117 (green), 118 (purple), 119 (pink), 120 (white), 121 (orange), 122 (brown), 123 (black), 124 (grey), 125 (yellow), 126 (red), 127 (blue), 128 (green), 129 (purple), 130 (pink), 131 (white), 132 (orange), 133 (brown), 134 (black), 135 (grey), 136 (yellow), 137 (red), 138 (blue), 139 (green), 140 (purple), 141 (pink), 142 (white), 143 (orange), 144 (brown), 145 (black), 146 (grey), 147 (yellow), 148 (red), 149 (blue), 150 (green), 151 (purple), 152 (pink), 153 (white), 154 (orange), 155 (brown), 156 (black), 157 (grey), 158 (yellow), 159 (red), 160 (blue), 161 (green), 162 (purple), 163 (pink), 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For the purpose of the present study, the following definitions of the terms *epistemic* and *epistemic* are used:

Epistemic (epistemic) is a term used to denote the knowledge of the nature of the world and the nature of the human mind.

Epistemic (epistemic) is a term used to denote the knowledge of the nature of the world and the nature of the human mind.

The *Epistemic* (epistemic) is a term used to denote the knowledge of the nature of the world and the nature of the human mind.

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Managers of Laboratories and Nurses: and Public Health Workers. By D. L. Edwards, Edinburgh, M.A. B.Sc. M.D., D.P.H. (Edin.) Medical Officer of Health, County Borough of South Down; Lecturer in Public Health (last and administrative), Department of Pathology, Fellow of the Royal Edinburgh Society. Second Edition, revised and enlarged 1937. Pp. 256, 100 photographs. Edinburgh, B and S. Lippincott Road 17, South Street. Price 5s. 6d.

In the earlier editions of the position of the text editors, the aim of the book is to provide the information which is likely to be required by nurses who are engaged on the hospital management of tuberculosis cases. The book then it has been widely used by persons other than those for whom it was intended, has led the editors to this, the second edition, to make the scope of the book, in thought, as its present form, appeal to clinicians, sanitary inspectors, and those engaged predominantly on work in connection with hospital and health department and pharmaceutical examinations.

The book is now made a full survey of all aspects of tuberculosis that it may be read with advantage by medical officers desiring to make a rapid survey of modern views on tuberculosis and the various aspects of its treatment. At the same time examinations or given fully in tuberculosis made apart from the actual treatment of patients in the wards.

The descriptions of methods and all procedures are clear and are put as far as possible in plain language. Technical terms where there are no alternatives, being explained, or a very full glossary at the end of the book. There is a good index, and also a long list of more advanced books recommended further reading for further study. A volume begins with the necessary which follows each chapter giving all the notes given at that chapter.

After considering the causation of the body to tubercle bacilli, the signs, symptoms, course and complications of the disease, the reader goes on to discuss manifestations and a summary of the disease. Then, after a chapter is devoted to collapse therapy and operative methods of treatment. In the remaining chapters tuberculosis in children, tuberculosis of bones and joints and other treatment are discussed. The closing chapters are given up to the use of tuberculin laboratory methods of diagnosis, private nursing, the tuberculous dispensary, post mortem, treatment, miscellaneous methods, and in a discussion of the epidemiology of tuberculosis.

The book is well printed, and there are many excellent illustrations.

Handbook of Practical Bacteriology. By T. J. Martin, M.D. D.P.H. Professor of Bacteriology, University of Edinburgh. University Bacteriologist in the Naval Laboratory, Edinburgh. Director of Bacteriological Services, City of Edinburgh, Glasgow, and J. E. McCarty, M.D. D.Sc. Director of Bacteriology and Pathology, and Lecturer, London County Council University Lecturer in Bacteriology, University of Edinburgh. Editor of the Bacteriological Institute for Medical Research, New York. 1936. Pp. 256. 100 photographs. B and S. Lippincott. Price 15s. 6d. net.

This little pocket sized in 1936 under the title of: An Introduction to Practical Bacteriology, which reached and deservedly popular work was appeared in the fifth edition, as a Handbook of Practical Bacteriology, the change of title being prompted by the continuous appearance of the text which has taken place since the rapid publication. And it is truly a Handbook — one might say a "Handy Book" — as opposed to the pocket-size two or three of treated topics in which the case is sometimes incorporated. No change has been made in the general layout of the book. It is, as in previous editions, divided into three parts. Of these, the first of forty pages is devoted to the general biology of some organisms and

illustrating all degrees, degrees, do and use of medical abbreviations which are popular and most useful.

It has an opening with much content and up to date information, including an article on Gas Pressure Measurements, and also one on the Skin Thermometer, which should be of great use as the present time when atmospheric conditions often make measurements. It explains both the method of using the instrument and the charting of data.

This little book—now a pocket volume—should be most helpful to the student nurse and also to the whole Nursing Profession at a book of reference.

A Practical Manual of Instruments. By LEO CHILDS, B.Sc., D.N. Lind and Leeds, Late Senior Tutor at Stanley Hospital and Haverthwaite Hall Veterinary Research Station at Woking Hospital, Liverpool. *Continuation of the Course of Medicine Course, Certificate of the Royal Veterinary Institute.* *Professor in the Veterinary Nursing Course for England and Wales.* Assisted by THOMAS E. DAVIS, B.A., M.D. and H.B.C.P. (Lond). Late Pathologist, Woking Hospital. Late Senior Lecturer in Zoology, University of Liverpool. *Professor of Pathology, University of Bristol.* Third Edition, 1935. Pp. 395 with 100 illustrations. 14 shilling. K and N Lippincott, 25 and 17, Strand Place. Price for non-postage 5d.

This *Practical Medical Instruments*, first published in 1922, has now reached its third edition which surely proves its popularity and usefulness.

The book, since its first of the common terms and definitions. The general edition has been revised and a number of new definitions have been added, also the illustrations have received attention and a hundred and twenty new ones included.

The book commences with a table of abbreviations of degrees, degrees, do. This is followed by tables of weights and measures and next the definition of medical terms.

In the appendix at the end of the book is a table of knowledge. Here we find the method of working out dosage, dosing tables, that is, dosage, when feeding, common poisons and their antidotes and various poisons, and finally some notes on blood examinations.

The authors aim in writing the book was to produce a pocket book of reference for medical students, and they have certainly achieved their object. We can thoroughly recommend this work to all medical students and nurses.

Texts and Reviews in Physiology. By Professor E. W. H. GRUNDGEHNS, M.D., D.Sc., M.B.C.P., F.R.C.S. Senior Professor of Physiology, University of Aberdeen. First Edition, 1933. Pp. 317. 2 shilling, 1s shilling. Edinburgh K and N Lippincott. Price for non-postage 5d.

The current widespread interest in natural history and the importance of nature in relation to health has been responsible for a large number of books on this subject. Some are treated while many others are by individuals addressing a particular branch of it.

Professor Grundgegens has written a small volume in simple language, based on a series of popular lectures, which he has made concerning for both the lay and professional reader. The medical community does not afford much time for the study of biology and this book is intended to allow them to obtain necessary knowledge of the subject. An advantage has been made to allow the whole field of natural and physical science. Obviously, it is of use to the general public. The book is aimed for the teacher, but the author has been careful to explain in the first chapter of the book the necessary explanation of our day and night occupations.

It is not a mere plain description of grammatical structures, but rather a systematic attempt to show how these structures are used in context. It is a book for the student of English, not for the student of English grammar.

Every chapter is written up with sound, simple, common sense and common sense, and is written with the explanation of the structure in mind. The author is not a mere grammarian, but a writer of English, and a writer of English is not a grammarian, but a writer of English, and a writer of English is not a grammarian, but a writer of English.

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THE STUDENT'S GUIDE TO THE STUDENT'S GUIDE By John D. Hall
1914. Pp. 100. 10s. 6d. (10s. 6d. in paper). London: George Allen and Unwin, Ltd.
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Account of Receipts and Payments for the year ending December 31, 1887

1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100	
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Preparations, &c.

WILLIAMS' DIETETIC CALCIUM MALICATE COMPOUND

The combination of *Williams' Dietetic Calcium Maliclate Compound* by Dr. J. C. Williams and Co. represents an important advance in medicine and therapy for various ailments. Calcium maliclate possesses many advantages over the various salts and calcium salts heretofore used, most notable perhaps, being its action upon the various acids which characterize the white cells of the blood and the degree of acid which is produced, thereby to increase its alkalinity and exposure to calcium maliclate which depotes disturbances following its administration are negligible.

Williams' Dietetic Calcium Maliclate Compound is a readily absorbed powder of 4.4 gm. (the correct adult dose) is equivalent to 8 gm. of maliclate and 11 gm. of sugar of 220 gm. with a measure and a supply of this paper.

NOTICE

THE PARKES MEMORIAL PRIZE, 1917

THE WAR OFFICE

LONDON S.W.1

February 7, 1918

MAJOR J. PARKES, M.C., R.A.M.C. has been awarded the Parkes Memorial Prize for his very valuable contributions to the history of bacteria and other military malacisms coupled with important work he has carried out in regard to the effect on rates of the wearing of his service equipment and the design of a suitable protective device for wearing with the respirator by men with injured limbs.

The Parkes Memorial Prize is awarded annually to the officer who is considered by the Commission to have done most to promote the advancement of Naval or Military Hygiene by professional work of outstanding merit and in special to medical officers of the Royal Navy, Army and Indian Army with the exception of the Professors and Assistant Professors of the Royal Naval Medical College, Greenwich and of the Royal Army Medical College, London, during their term of office.

NAVAL MEDICAL COMPASSIONATE FUND

At the Quarterly Meeting of the Fund, held on January 22, Messrs. The Admiral P. T. and the C. B. R. B. F., Medical Director, General of the Navy, as the Chair, three cases were considered and 4/9 voted to the applicants. The following is a summary of the cases:—

Two cases, aged 30 and 32, of a Fleet Surgeon who died in 1915. The husband, James, died in 1915 while on duty in the Royal Navy and was killed in action in the Battle of Jutland. He was the only son of the late Mr. James, who died in 1915. Total amount received from the Naval Medical Compendium Fund at various periods £1,111.

One case, aged 31, of a Surgeon who died in 1915. Lived with his mother (Mrs.) and had no other income and dependent on grant received from the Admiralty in 1915. Total amount received from the Naval Medical Compendium Fund at various periods £1,111.





MR. GEORGE HILL

Major-General, 1st Cavalry Division

to General Headquarters the same year. On 1st July 1902 he was appointed as Assistant General of the Naval Medical Service and spent very few nights at home on request on relinquishing the 11th Division 1902.

During his career he married twice because the M.V.O. in 1902 and the C.V.O. in February 1902.

In 1903 he was awarded for his good work as representative both before and after the action of Tofino. In July, 1906 he was recommended for promotion to Deputy Surgeon General for most valuable surgical work as Surgeon wounded from the Dover Patrol his promotion to that rank being June 26, 1910.

In June 1911, he was awarded the Order of St. Stanislas (2nd Class with medals) conferred by the Russian Government for distinguished services rendered in the fields of Tofino. In June 1916 he was awarded the D (M) for services rendered during the War. In April 1916, he was made a K.C.M.G. and in December of the same year he received the distinguished Service Medal from the President of the U.S.A. In the same year he was elected Hon. F.R.C.S. Edin. In June 1920 he was promoted K.C.B. In May, 1924 he was appointed K.H.S. and elected Hon. F.R.C.S. Edin. Sir Robert was also a Knight of Justice of the Order of St. John of Jerusalem.

He served as member or committee notably of Queen Mary's Auxiliary, War Reliance House and the Imperial Institute and numerous others.

Such is a brief account of Sir Robert's distinguished career. Of the well-known, may I be allowed to add a few words. When I first went up to Middlesex in 1908, Robert Hill had already become a legendary figure. Not then the outstanding student of his year and as Captain of the Rugby XI in 1906, the only year in which Middlesex have ever won the Hospital Cup, he had earned a lasting name. After being house surgeon to Henry Morris, he passed into the Navy, where he soon became a popular figure. It was at Brighton 1909 when I really came to know and love him in that year he returned home as operating surgeon. He has never been given enough credit for his work as a surgeon. For two years I worked with him and as a young doctor was daily warned that as time went on our operations of his skill and confidence were increased and our admiration for the way in which he cared for his patients was unbounded. I can see him now sitting at the foot of a hospital bed listening sympathetically to the nurse's private troubles, always kindly and helpful, patient and understanding, his words were invariably confident. He persuaded the patient to get well as much by his personality as by his doctoring, indeed the patient was always so persuaded, friend whether he sought for a drug officer, nurse, midwife, or a newly joined soldier. I remember years after Major Dyer asking him if he recollected a case he had operated on which had caused a certain amount of anxiety (it was a fracture dislocation of the upper dorsal region). "Oh yes," he replied, "I heard from him the other

By he has just left the Service and got a job. As a long soldier was a career, he could not wish to do people with extraordinary services. They treated wonderful devotion long his life, and to serve under him was a joy. Was education.

After Malta, we were by apart until I met him again in India when he was accompanying Their Majesties as P.M.O. in Madras. He was just the same simple and true friend, and we spent unforgettable days together. Later as P.M.O. of the Grand Fleet, I was then seldom but more than once he helped me and others in our difficulties.

After the War we took a personal peck in his house, it was a privilege to meet under such an M.D.O. and the volume was covered in the Admiralty under the museum one to be remembered. Always cheerful, he had one minor grievance. He had wanted so much to become P.M.O. of one of the great hospitals but because of his royal promotion, that was denied to him. As Doctor there must be many others still looking who were much to his example and advice.

After his retirement Sir Robert lived for some years in London, later he went to live at Dorney-on-Thames where he took an active interest in local affairs. He was Vice President of the Hawley Branch of the British Legion, and at one time President of the Hawley Golf Club. He was also a Director of the Home and Overseas House at Richmond. Queen Mary never lost touch with him, and her niece Miss Thompson, told me that his last days were cheered by a kindly letter from her, and that was indeed the very last letter she was able to read to him before he passed to his eternal rest.

A great and lovable personality has gone from us, one whose name will be kept green in the service in which he played so late a part, for he was ever true to the work of helping —

Could talk with words and long his career
On with such days we have our greatest work.

Original Articles.

EXTRACT FROM THE ORIENTAL VOYAGER BY
J. JOHNSON SURGEON IN THE ROYAL NAVY

JOHNSON, JAMES, M.D., IN HIS FIRST LITERARY WORKS. (LONDON, 1771.)

JAMES JOHNSON, M.D., was a north country Irishman of ancient stock born near Derry in 1771. At the age of 15 he was apprenticed to a Mr. Young Surgeon Apothecary at Port Clarence. Presently he was posted to Belfast and did a further two years' apprenticeship there, and then devoted himself to study and without money as he was, to try his fortune in London. After a year's struggle he qualified as Surgeon, Hall in 1790, and became a Surgeon's Mate on the Royal Mary in that year.

He accompanied the Pygmye Expedition on H.M.'s Cythera and was present at the siege of Beche Idia, and on the other amphibious operations which covered on the voyage out to Egypt. In 1793 he went with a company to Greenwich and Haden's Bay. After that he was appointed to H.M.'s Carolina, and over three years' service on the East India and in the Far East. The accompanying extract from "The Oriental Voyager" is concerned with the coast-guard.

He was much better known after that on H.M.'s Falcon Young's Flagship in the North Sea Fleet. In 1812 he wrote his first and best work "The Influence of Tropical Climate on European Constitution." Young recommended him very strongly to the Duke of Clarence, when that prince returned command in the North Sea, and he appears to have lived up to his reputation with the Duke.

In 1814 he was placed on half-pay, and began to practise as Physician. In 1818 he returned to London. By 1821 he was a Doctor of Medicine and a Lecturer at the Royal College of Physicians. Moreover he was the distinguished editor of the successful *Medical (Surgical) Review*, and was patronised by the aristocracy. He continued his editorship till 1834.

The Duke of Clarence in due course became William IV, King of England, and appointed Johnson as Physician Laureate to the King. Sometimes the title had become a successful consulting physician, and an author of reports. He wrote much on the digestive organs and liver, on the nervous system, and on weather climates.

In 1848 Johnson died in Brighton, his health having failed a year or two previously.

ABSTRACT FROM 'THE ORIENTAL VOYAGER OR DESCRIPTIVE
NOTES ON A VOYAGE TO INDIA IN HIS MAJESTY'S SHIP
GALATHEE PERFORMED IN THE YEARS 1809 & 10

BY J. JORDAN.

Surgeon on the Royal Navy

London 1811

'I sincerely trust when the state of society shall be
these measures shall not be their usual remedy'

Odyssey

'I at last the Waves' numbers given

That for the rest and nothing deep to see

Ukraine always of efforts, but for to see

And still the same efforts of effort seen

What, since then, suggest the natural scene

Of operations from the scene given

I can express when I see the better scene

To the black coast of voyage I also see

May 1800

REMARKS ON PREVENTING THE RABBIT IN INDIA

Europeans in general, on their first arrival in India are prejudiced
with the idea that sleeping at night in the open air must be a very
dangerous practice: but in the course of a short residence on shore, they
get rid of this prejudice by observing that of the natives and many of the
Europeans sleeping on open terraces and verandas, not only with impunity
but as a preservative against the deleterious effects of a hot climate. But
on board ships, where they have not an opportunity of seeing or reflecting
on these circumstances they frequently adhere, for a considerable time
after their arrival in the station, to the established regulations of making
every man sleep in his proper berth and suffering none to be above the
deck, a custom in my opinion very prejudicial to the health of ships
companies in India. As now, indeed, it is not of so great consequence,
where the watch on deck always gives sufficient room to those below, but
it is a bad custom and unnecessary, when the air is much better than at sea
that the necessity of the measure becomes manifest.

'I think the following comparison will set this circumstance in a clear
point of view, and will be found entirely correct. We will suppose first
there are two English going at anchor in Madras roads, in one of which
the regulations above mentioned are strictly observed by us, the British
admiral has particular orders to see that every man be in his hammock
by nine o'clock and that none be permitted, on any pretence whatever to
be above the deck afterwards. We will likewise suppose that every man
when he turns into his hammock falls fast asleep in a few minutes,
which, by the way, is not always the case. About eleven o'clock however
I will venture to say, he awakes in a deluge of perspiration and pouring
with the heat and crowded air upon which he turns out and goes upon

opportunity to keep the women in bed during the night and allow the men to sleep in the open air, especially in barboos and in hot weather.

I could not have by sleeping arrangements the above as an alternative with the preference as to where will easily see when it may be applicable and where it might be detrimental to the health of the ships company. If it is all well, he instance allow the men to sleep in the open air under the following instances:—

First. In the rainy season, or at the shifting of the monsoons, when the sickness of the men renders sleeping below a matter of little consequence.

Secondly. In those seasons of the year when heavy dew-fall during the night and when coverings cannot be kept spread to prevent the men from their harmful influences.

Thirdly. In rivers and other situations where joint ventilation was constantly liable to draw the miasma or low muddy stream contiguous to the anchorage, and which should be guarded against by sleeping below and using large mosquito nets.

These I think are the principal objections, they can reasonably be urged against sleeping in the open air, and as they had seldom come, I could not hope that the above hints may prove of some utility to those who may be disposed to give them a fair trial.

The next circumstance which I shall allude to is a cold bathing; it would perhaps, be a very desirable object if the women could be persuaded upon to bathe regularly every morning by going into the channel, do and having a few buckets of water on their heads. But as I am by no means an advocate of compulsory measures in this respect, I should rather advise the officers to set the example, not only as an inducement to the men but as a measure that would prove highly conducive to their own health.

With respect to washing the lower decks of ships in India it may be remarked that whatever precautions may arise from the too frequent repetition of this practice in cold climates, it will always be found a very salutary operation in hot climates. This practice cleans the decks constantly, kills great numbers of vermin and other noxious, and as the people have no occasion to go below until the decks are perfectly dry, the officers, they are washed the more comfortably will it be to health. It should likewise be a great study with officers of men of war, and other vessels in India to expose the men as little as possible to the influence of a powerful sun, and consequently the greatest attention should be paid to the coverings of the boats as well as those of the ship.

The last circumstance which I shall allude to is that of allowing the women liberty to go ashore, and I do it with the greatest reluctance as no man can be too careful to shield the few pleasures or comforts of a British woman than myself. Nevertheless, I think it my duty to give my decided negative to an indulgence which I am convinced is both ill timed and pernicious to those who may think themselves favored by it at the moment.

The Lord, who himself was well acquainted with the East India System makes the following remarks on the subject which I am now writing of. "Another evil," says he, "less known and less suspected, but no less dangerous, is the sending of Europeans on open boats when storms, where the odds strongly or where there are great night tugs. The night duty alone of detaching boatsmen afloat at night for the use of our ships, companies on the East and West Indies, has destroyed every year several thousand men. In those parts of the world boatsmen must come in by night on board at night, consequently when it is light, otherwise it will not be fit for use the next day. During the early months at Batavia, about belonging to the *Arcturion* which attended where every night was three times unnecessarily sent out, not one having survived that service. They were all taken off in the night, when on shore or when returning on board so that at length the officers were obliged to employ more but the natives of that business. Great numbers of men have perished from being employed in the service at Bengal, where the European ships often lie at anchor in the most unhealthy spots of the river, and even when the great night tugs were after the rainy season the men are often obliged to perform such night service in boats."

Now since it is so dangerous for Europeans in unhealthy climates, particularly during a season of sickness, to be exposed in an open boat to the dagg night air it must appear that sending them unsheltered, on open boats far up rivers in unhealthy tropical climates for the sake of wood water, trade or other purposes, must be attended with the worst consequences.

"The best preservative against the malarious impurities of a putrid fog, or of a muggy exhalation is a close sheltered, and covered place in which there are no flames or windows facing the winds. Persons on board any ship whatever, are much more safe and their situation is much preferable to that of those who make distant inland excursions in small boats upon the rivers, and who are for the most part ignorant of the cause of those malarious winds destroy them."

"DRESS OF AN UNHEALTHY CLIMATE"

"(1) A sudden and great alteration in the air is most, from unkindness bent to chilling cold. This is perceived as soon as the sun is down, and is for the most part accompanied by a very heavy dew. It shows an unhealthy swampy soil the nature of which is such that no sooner the patients are withdrawn than the vapours exhaled from it, render the air dampness and chilling, in the most unhealthy climate, so that even under the equator, in some unhealthy places, the night air is very cold in an European constitution."

"(2) Thick malarious fogs, chiefly at sunset, arising from the valleys and particularly from mud, clay or other superfluous. In hot countries, the smell of these fogs may be compared to a new-dressed ditch. Dampness,

therefore, arising from other causes generally, take place in the *Chand* before capture.

¹ (3) Numerous swarms of flies, gnats, and other insects, which either stagnated in, and a sickly, plague covered with wood.

² (4) When *Chand* were seen corrupt.

The foregoing observations will I hope, be of some service to others in general, as they first arrived at this distant station.

Every indulgence compatible with the Service and good discipline should be liberally granted to the British seamen serving on India; when, he is not only cut off as it were, from all intercourse with his friends and relatives, but from the nation of the slave, and his own thoughtless depravity he is necessarily deprived of that much prized indulgence—liberty to go on shore.

And here let me most sincerely beseech the Government, whatever it may be, that our valiant Government to keep ships such a length of time on the East India Service before they are relieved.

The prevailing idea that men, by remaining a long time on India, become accustomed to the climate, and thereby better able to bear its effects, is in my opinion, erroneous and undesirable. It is true, that most Europeans on their first arrival here as well as in other hot countries experience a slight fit of illness, which probably renders them less susceptible to disease for the next three or four years; but after that period we may, in general, expect that the constitution is hopelessly giving way before the effects of the climate, which is rendered well more evident by the fact, *venue* illness that happens, when the debilitated state of the constitution gives them a much smaller chance of recovery than of the human body given within the above mentioned period.

It is well known that the depressing passion of 'hope deferred' is highly injurious to the constitution in any country; but in this case it is peculiarly so, many of the sailors looking entirely to the gloomy side of the picture as considering themselves as consigned to the climate, when they see their associates gradually drop off, with little other prospect before them than that of sharing the same fate! Men of this description are the very first to feel the fatal influence of the climate.

THE STERILIZATION OF T.A.B.C. VACCINE¹

By JEROME CHAMBERS, D. O. BROOKFIELD, M.D. &c.

INTRODUCTION

That value supply of T.A.B.C. vaccine for the Royal Navy is prepared at the Royal Naval Medical School, Greenwich; a Viallet of 10 ampoules is used. The method of distribution employed is as follows: the vaccination

¹ Reprinted from the *Journal of Hygiene* by kind permission of the Cambridge University Press.

at 55°C. versus growth rate, assuming temperature to be 50°C. (based upon the known degree of heating of the suspension in water after the autoclave treatment compared to the exposure time in the autoclave). On the two 100% yields, *B. subtilis* and *B. pterodermidis* of *B. pasteurianus* & *B. melior*. The *B. pterodermidis* & *B. pasteurianus* are the strains recommended by the industry (p. 1934) which show that on a total mass of 50,000 men there were only 100 men of spores and the *B. melior* & *B. pterodermidis* are and that all of them were recovered.

These results must be exceedingly deficient in *B. subtilis* (p. 1934). (1944) has shown that when this substance is heated at 100°C. in a vacuum still house it fails to produce *B. subtilis* in the culture and (1944) that 5.5 per cent. placed alone, when used to sterilize *B. subtilis* spores over destroy the *B. subtilis*. It was to be expected, therefore, that if a method of sterilization could be devised which was without destructive action on the *B. subtilis* content it would be possible to prepare a source of enhanced microorganism quality.

In attempting this problem it was postulated that practical considerations demanded that the source should:

(a) Not require a dose or extent of 1.0 g. to avoid the introduction of a contamination process the method of sterilization therefore must be capable of being an appropriate bacteria essentially not less than 1000 × 10⁶ per cent.

(b) Retain its potency for at least six months.

(c) Have satisfactory properties capable of producing secondary growth.

(d) Contain nothing injurious to human beings when ingested voluntarily.

Heat Treatment

In view of the finding by Hargus (1940) that suspensions of *B. subtilis* in concentrations of 1.000×10^6 per cent. could be maintained by a temperature of 55°C. for one hour and that this treatment has no detrimental effect on the *B. subtilis* suspension, were made to determine whether higher concentrations could be obtained by the same means.

Twenty-four hour old cultures on beef bouillon agar were washed off, suspended and 50 per cent. water pH 7 and sterilized by gravity. The suspensions tested ranged from 10×10^6 down to 1×10^6 per cent. 200 cc. of each suspension were inoculated into a Warmerman tube and immersed in a water bath at 55°C. so that the level of the water in the bath was 1 in. higher than the surface of the suspension. After one hour sterility tests were carried out by inoculating some of the suspension from each tube into broth. These tests were repeated after a further period of 10½ hours. The temperature of the bath was checked by three thermometers (one N.P.L. standard). The cultures tested on this system included three strains of *B. subtilis*, Ty 1, Gephok and Bacthops represented (1944) and three strains of *B. pasteurianus*, A (Mered), B (Glowhead) and C (Hatchfield). It was found that none of these cultures was inhibited by

this means. The tests were repeated several times) as always with the first result. The discrepancy between these findings and those of Hoopes is probably due to some unknown factor which could be certain strains of *B. typhosa* either more resistant or more susceptible to the effects of heat.

Most difficulties closely resembling those in the present problem occurred with us the preparation of an effective suspending medium. In the *Hoffmuller Institute Report*, Fall-45 it is stated that a combination of this medium by heating for fifteen minutes at 55° C. instead of at 65° C. for one hour greatly enhanced its bacteriological properties. This leads to confirm the suggestion of Faine (1944) that viruses with sensitive viruses to those of *B. typhosa* are to be found in bacteria other than *B. typhosa*, while Hoopes's work appears to indicate that these sensitive viruses are not seriously affected by heating at 55° C. It was thought, therefore, that a potent *B. typhosa* typical vaccine might be prepared if the factors governing the decrease of heat resistance of the typical group of bacteria could be discovered, but this line of research was not pursued as an alternative method of destruction promised to offer a more immediate solution to the problem.

The method is a preparation now called "Katalpa," and its effects are attributed to the oligoprotein action of certain amounts of silver which are reported to be neutralized.

KATALPA or a BACTERIAL AGENT Experiment

An eighteen hour old culture of *B. typhosa* strain Ty 2 grown on beef heart agar pH 7.4 was washed off and suspended in distilled water pH 7.4. The opacity of this suspension was equivalent to 8×10^8 per cc. bacterial bodies, 50 cc., was suspended into 100 cc. of the suspension contained in a sterile screw-cap bottle which was then placed on a refrigerator at a temperature of 4° C. Viability tests were made daily by neutralizing some of the suspension into broth and incubating at 37° for seven days. After three days storage in the refrigerator the suspension was sterile. It was then inoculated into another sterile screw cap bottle, and further tests were made in broth and glucose agar which confirmed the sterility. This suspension will be designated as K1. Table I shows the results obtained when this suspension was tested against Vi 0 and H 500. The Vi strain 8 was prepared as described with the remainder chosen of Faine (1944) by measuring an ability to cause intracerebral infections of a living culture of *B. typhosa* (V strain England), one week after the last injection the rabbit being bled and the serum separated and stored with all precautions. After absorption with the highly agglutinable strain Ty 2000 this serum had a Vi index of 1/160 with the V strain W down and 1/1000 with Ty 2. The O serum was prepared by measuring a rabbit with a heat killed culture of Ty 0001 against an phage agar then was also stored without preservative.

For comparison the reactions obtained with the suspensions Ba_2O , Ba_2O and Ba_2O when tested against Ti_2O_3 and Ti_2O_3 are shown in Table III.

Tables I and II show that oxidation of Ti_2O_3 suspensions by heat alone produced pronounced conversions to Ti_2O_3 and, and also a slight loss of Ti_2O_3 in some cases.

Table III shows the conversion of Ba_2O to Ba_2O in Ti_2O_3 suspensions.

Temp. (°C.)	Time (hr.)	Ti_2O_3	Ba_2O	Ba_2O	Ti_2O_3
100	1	0.00	0.00	0.00	0.00
100	2	0.00	0.00	0.00	0.00
100	3	0.00	0.00	0.00	0.00
100	4	0.00	0.00	0.00	0.00
100	5	0.00	0.00	0.00	0.00
100	6	0.00	0.00	0.00	0.00
100	7	0.00	0.00	0.00	0.00
100	8	0.00	0.00	0.00	0.00
100	9	0.00	0.00	0.00	0.00
100	10	0.00	0.00	0.00	0.00
100	11	0.00	0.00	0.00	0.00
100	12	0.00	0.00	0.00	0.00
100	13	0.00	0.00	0.00	0.00
100	14	0.00	0.00	0.00	0.00
100	15	0.00	0.00	0.00	0.00
100	16	0.00	0.00	0.00	0.00
100	17	0.00	0.00	0.00	0.00
100	18	0.00	0.00	0.00	0.00
100	19	0.00	0.00	0.00	0.00
100	20	0.00	0.00	0.00	0.00
100	21	0.00	0.00	0.00	0.00
100	22	0.00	0.00	0.00	0.00
100	23	0.00	0.00	0.00	0.00
100	24	0.00	0.00	0.00	0.00
100	25	0.00	0.00	0.00	0.00
100	26	0.00	0.00	0.00	0.00
100	27	0.00	0.00	0.00	0.00
100	28	0.00	0.00	0.00	0.00
100	29	0.00	0.00	0.00	0.00
100	30	0.00	0.00	0.00	0.00
100	31	0.00	0.00	0.00	0.00
100	32	0.00	0.00	0.00	0.00
100	33	0.00	0.00	0.00	0.00
100	34	0.00	0.00	0.00	0.00
100	35	0.00	0.00	0.00	0.00
100	36	0.00	0.00	0.00	0.00
100	37	0.00	0.00	0.00	0.00
100	38	0.00	0.00	0.00	0.00
100	39	0.00	0.00	0.00	0.00
100	40	0.00	0.00	0.00	0.00
100	41	0.00	0.00	0.00	0.00
100	42	0.00	0.00	0.00	0.00
100	43	0.00	0.00	0.00	0.00
100	44	0.00	0.00	0.00	0.00
100	45	0.00	0.00	0.00	0.00
100	46	0.00	0.00	0.00	0.00
100	47	0.00	0.00	0.00	0.00
100	48	0.00	0.00	0.00	0.00
100	49	0.00	0.00	0.00	0.00
100	50	0.00	0.00	0.00	0.00
100	51	0.00	0.00	0.00	0.00
100	52	0.00	0.00	0.00	0.00
100	53	0.00	0.00	0.00	0.00
100	54	0.00	0.00	0.00	0.00
100	55	0.00	0.00	0.00	0.00
100	56	0.00	0.00	0.00	0.00
100	57	0.00	0.00	0.00	0.00
100	58	0.00	0.00	0.00	0.00
100	59	0.00	0.00	0.00	0.00
100	60	0.00	0.00	0.00	0.00
100	61	0.00	0.00	0.00	0.00
100	62	0.00	0.00	0.00	0.00
100	63	0.00	0.00	0.00	0.00
100	64	0.00	0.00	0.00	0.00
100	65	0.00	0.00	0.00	0.00
100	66	0.00	0.00	0.00	0.00
100	67	0.00	0.00	0.00	0.00
100	68	0.00	0.00	0.00	0.00
100	69	0.00	0.00	0.00	0.00
100	70	0.00	0.00	0.00	0.00
100	71	0.00	0.00	0.00	0.00
100	72	0.00	0.00	0.00	0.00
100	73	0.00	0.00	0.00	0.00
100	74	0.00	0.00	0.00	0.00
100	75	0.00	0.00	0.00	0.00
100	76	0.00	0.00	0.00	0.00
100	77	0.00	0.00	0.00	0.00
100	78	0.00	0.00	0.00	0.00
100	79	0.00	0.00	0.00	0.00
100	80	0.00	0.00	0.00	0.00
100	81	0.00	0.00	0.00	0.00
100	82	0.00	0.00	0.00	0.00
100	83	0.00	0.00	0.00	0.00
100	84	0.00	0.00	0.00	0.00
100	85	0.00	0.00	0.00	0.00
100	86	0.00	0.00	0.00	0.00
100	87	0.00	0.00	0.00	0.00
100	88	0.00	0.00	0.00	0.00
100	89	0.00	0.00	0.00	0.00
100	90	0.00	0.00	0.00	0.00
100	91	0.00	0.00	0.00	0.00
100	92	0.00	0.00	0.00	0.00
100	93	0.00	0.00	0.00	0.00
100	94	0.00	0.00	0.00	0.00
100	95	0.00	0.00	0.00	0.00
100	96	0.00	0.00	0.00	0.00
100	97	0.00	0.00	0.00	0.00
100	98	0.00	0.00	0.00	0.00
100	99	0.00	0.00	0.00	0.00
100	100	0.00	0.00	0.00	0.00

enhancement of resistance to oxidation. These effects point to some loss of Vanadium (Fein, 1934). Although these tests for Ti_2O_3 were carried out in air, they are not a real indication of the true manufacturing properties of titanium dioxide suspensions; they were considered as merely preliminary to justify further investigation in that direction.

THE THERMAL STABILITY OF TITANIUM DIOXIDE SUSPENSIONS

For the investigation a number of samples were prepared as follows:—

Temp. (°C.)	Time (hr.)	Ti_2O_3	Ba_2O	Ba_2O	Ti_2O_3
100	1	0.00	0.00	0.00	0.00
100	2	0.00	0.00	0.00	0.00
100	3	0.00	0.00	0.00	0.00
100	4	0.00	0.00	0.00	0.00
100	5	0.00	0.00	0.00	0.00
100	6	0.00	0.00	0.00	0.00
100	7	0.00	0.00	0.00	0.00
100	8	0.00	0.00	0.00	0.00
100	9	0.00	0.00	0.00	0.00
100	10	0.00	0.00	0.00	0.00
100	11	0.00	0.00	0.00	0.00
100	12	0.00	0.00	0.00	0.00
100	13	0.00	0.00	0.00	0.00
100	14	0.00	0.00	0.00	0.00
100	15	0.00	0.00	0.00	0.00
100	16	0.00	0.00	0.00	0.00
100	17	0.00	0.00	0.00	0.00
100	18	0.00	0.00	0.00	0.00
100	19	0.00	0.00	0.00	0.00
100	20	0.00	0.00	0.00	0.00
100	21	0.00	0.00	0.00	0.00
100	22	0.00	0.00	0.00	0.00
100	23	0.00	0.00	0.00	0.00
100	24	0.00	0.00	0.00	0.00
100	25	0.00	0.00	0.00	0.00
100	26	0.00	0.00	0.00	0.00
100	27	0.00	0.00	0.00	0.00
100	28	0.00	0.00	0.00	0.00
100	29	0.00	0.00	0.00	0.00
100	30	0.00	0.00	0.00	0.00
100	31	0.00	0.00	0.00	0.00
100	32	0.00	0.00	0.00	0.00
100	33	0.00	0.00	0.00	0.00
100	34	0.00	0.00	0.00	0.00
100	35	0.00	0.00	0.00	0.00
100	36	0.00	0.00	0.00	0.00
100	37	0.00	0.00	0.00	0.00
100	38	0.00	0.00	0.00	0.00
100	39	0.00	0.00	0.00	0.00
100	40	0.00	0.00	0.00	0.00
100	41	0.00	0.00	0.00	0.00
100	42	0.00	0.00	0.00	0.00
100	43	0.00	0.00	0.00	0.00
100	44	0.00	0.00	0.00	0.00
100	45	0.00	0.00	0.00	0.00
100	46	0.00	0.00	0.00	0.00
100	47	0.00	0.00	0.00	0.00
100	48	0.00	0.00	0.00	0.00
100	49	0.00	0.00	0.00	0.00
100	50	0.00	0.00	0.00	0.00
100	51	0.00	0.00	0.00	0.00
100	52	0.00	0.00	0.00	0.00
100	53	0.00	0.00	0.00	0.00
100	54	0.00	0.00	0.00	0.00
100	55	0.00	0.00	0.00	0.00
100	56	0.00	0.00	0.00	0.00
100	57	0.00	0.00	0.00	0.00
100	58	0.00	0.00	0.00	0.00
100	59	0.00	0.00	0.00	0.00
100	60	0.00	0.00	0.00	0.00
100	61	0.00	0.00	0.00	0.00
100	62	0.00	0.00	0.00	0.00
100	63	0.00	0.00	0.00	0.00
100	64	0.00	0.00	0.00	0.00
100	65	0.00	0.00	0.00	0.00
100	66	0.00	0.00	0.00	0.00
100	67	0.00	0.00	0.00	0.00
100	68	0.00	0.00	0.00	0.00
100	69	0.00	0.00	0.00	0.00
100	70	0.00	0.00	0.00	0.00
100	71	0.00	0.00	0.00	0.00
100	72	0.00	0.00	0.00	0.00
100	73	0.00	0.00	0.00	0.00
100	74	0.00	0.00	0.00	0.00
100	75	0.00	0.00	0.00	0.00
100	76	0.00	0.00	0.00	0.00
100	77	0.00	0.00	0.00	0.00
100	78	0.00	0.00	0.00	0.00
100	79	0.00	0.00	0.00	0.00
100	80	0.00	0.00	0.00	0.00
100	81	0.00	0.00	0.00	0.00
100	82	0.00	0.00	0.00	0.00
100	83	0.00	0.00	0.00	0.00
100	84	0.00	0.00	0.00	0.00
100	85	0.00	0.00	0.00	0.00
100	86	0.00	0.00	0.00	0.00
100	87	0.00	0.00	0.00	0.00
100	88	0.00	0.00	0.00	0.00
100	89	0.00	0.00	0.00	0.00
100	90	0.00	0.00	0.00	0.00
100	91	0.00	0.00	0.00	0.00
100	92	0.00	0.00	0.00	0.00
100	93	0.00	0.00	0.00	0.00
100	94	0.00	0.00	0.00	0.00
100	95	0.00	0.00	0.00	0.00
100	96	0.00	0.00	0.00	0.00
100	97	0.00	0.00	0.00	0.00
100	98	0.00	0.00	0.00	0.00
100	99	0.00	0.00	0.00	0.00
100	100	0.00	0.00	0.00	0.00

Temp. (°C.)	Time (hr.)	$\text{$
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approx. 1×10^{-4} M. It was a 5% solution of H_2SO_4 in H_2O . The large drops as shown, these might have been caused by the fact that before proceeding further the measuring apparatus was checked for leaks.

Electrolysis with the apparatus

This was performed with a small, portable apparatus consisting of a dry battery connected to two silver electrodes (see Fig. 1). When the electrodes are separated by water in all cases the electrodes are placed in the water. The silver is on the left and the measuring point is on the right. The green chemical nature of the apparatus is very low. The apparatus described above is used as shown, with a small amount of water in a beaker as in distilled water. In the 10% solution the electrodes (silver) are placed in the beaker the current is 1.0 ampere.



Fig. 1. Apparatus

The 5% solution of H_2SO_4 in H_2O was placed in a beaker with an level 1 cm high water was washed off and separated in distilled water. This suspension was concentrated by gravity to 5×10^{-4} per cent and was treated with electric current. In measuring the two electrodes of the apparatus in 10% of the electrolyte. It was then allowed to stand for four hours at room temperature and was then transferred to a sterile water bag bottle containing 0.4% of sodium chloride. It was shaken well to dissolve the electrolyte. Tests were made by measuring the treated suspension with tubes of beads and glucose agar which were incubated for one week at 37°C . These tests showed the suspension to be sterile.

It is necessary to explain that this suspension was greatly enriched with electro-biotulysin so it was discovered later that a dosage equivalent to 1/10 of that used in the above experiment was more than sufficient to render such a weight of suspension sterile. This suspension was so dense that it turned black when exposed to light. In practice it would be undesirable and unnecessary to assume the sterilization directly in the suspension, for it was found that suspensions could be equally quickly sterilized by treating the water first and suspending the organisms in the treated water. When the suspensions run being treated the amount passing represented 7 ml. equivalent to a dosage of 0.011 per cent silver.

Table VII shows the reactions of this suspension (20:1) to past Vs, D and H sera.

TABLE VII.—Reactions with the Sterilized Suspensions of an Infected Suspension, Immune Sera and of a V strain, or of B spines

Type of sera (added to the B strain)	Amount	Reaction		V ₁	B ₁ spines	
		20:1	1:1		1:1	1:10
Type V strain (added to B strain)	10	+++	+++	+++	—	—
	40	+++	+++	+++	—	—
	100	+++	+	+++	—	—
	200	—	—	—	—	—
	400	—	—	—	—	—
Type D strain (added to B strain)	10	+++	(+)	—	+++	+++
	40	—	—	—	+++	+++
	100	—	—	—	+++	+++
	200	—	—	—	+++	+++
	400	—	—	—	+++	+++
	1000	—	—	—	—	+++
	2000	—	—	—	—	+++
	4000	—	—	—	—	+++
	8000	—	—	—	—	+++
	16000	—	—	—	—	+++
Type H strain (added to B strain)	40	+++	+++	+++	—	+++
	100	+++	+++	+++	—	+++
	400	+++	+++	+++	—	+++
	1000	+++	+++	+++	—	+++
	4000	+++	+++	+++	—	+++
	8000	+++	+++	+++	—	+++
	16000	+++	+++	+++	—	+++

These tables show that the agglutination reactions obtained with an electro-biotulysin sterilized suspension of a V strain of B spines differ little if at all from those obtained with living suspensions.

THE IMMUNOLOGICAL AND AGGLOUTININ REACTIONS OF TYPICAL BACTERIAL STRAINING SUSPENSIONS OF V STRAINS OR B SPINES

Folk (1906) has stated that the treatment of suspensions of Vi antigen containing bacilli with alcohol has no detrimental effect on the maximum agglutination of the Vi antigen. It was therefore considered that in order to ascertain the value of an electro-biotulysin sterilized suspension as an immunogen, agent it would be necessary to compare it both with a suspension heated at 56° C. for one and a half hours with subsequent addition of 5 ml per cent phenol, and with one sterilized by Folk's (1906) method (weight per cent alcohol). Therefore each of these three suspensions of the

1. Table II shows that it is impossible rubber, by giving these interventions, against 70, 1,000 and 1,000 rabbits with a one day's interval between injections. One week after the last injection each rabbit was bled from the jugular vein the serum separated. To remove clotting from these sera they filtered through a sterile F & L filter and stored without preservation.

The A, O and H titers of these sera are shown in Table VIII.

Table VIII shows that sera dried with care 1 day after, or at 37°C. for 2 days, and then preserved in vacuum over the remaining 2 days, retained all their activity.

A. O and H titers of sera (1:10,000 = 0.5)		Drying		1. Effect of heat	
Sera		Temperature		Time	
By 7 rabbits by electrically dried		37°C.		1 day	
By 7 rabbits by electrically dried		37°C.		2 days	
By 7 rabbits by electrically dried		37°C.		3 days	
By 7 rabbits by electrically dried		37°C.		4 days	
By 7 rabbits by electrically dried		37°C.		5 days	
By 7 rabbits by electrically dried		37°C.		6 days	
By 7 rabbits by electrically dried		37°C.		7 days	
By 7 rabbits by electrically dried		37°C.		8 days	
By 7 rabbits by electrically dried		37°C.		9 days	
By 7 rabbits by electrically dried		37°C.		10 days	
By 7 rabbits by electrically dried		37°C.		11 days	
By 7 rabbits by electrically dried		37°C.		12 days	
By 7 rabbits by electrically dried		37°C.		13 days	
By 7 rabbits by electrically dried		37°C.		14 days	
By 7 rabbits by electrically dried		37°C.		15 days	
By 7 rabbits by electrically dried		37°C.		16 days	
By 7 rabbits by electrically dried		37°C.		17 days	
By 7 rabbits by electrically dried		37°C.		18 days	
By 7 rabbits by electrically dried		37°C.		19 days	
By 7 rabbits by electrically dried		37°C.		20 days	
By 7 rabbits by electrically dried		37°C.		21 days	
By 7 rabbits by electrically dried		37°C.		22 days	
By 7 rabbits by electrically dried		37°C.		23 days	
By 7 rabbits by electrically dried		37°C.		24 days	
By 7 rabbits by electrically dried		37°C.		25 days	
By 7 rabbits by electrically dried		37°C.		26 days	
By 7 rabbits by electrically dried		37°C.		27 days	
By 7 rabbits by electrically dried		37°C.		28 days	
By 7 rabbits by electrically dried		37°C.		29 days	
By 7 rabbits by electrically dried		37°C.		30 days	
By 7 rabbits by electrically dried		37°C.		31 days	
By 7 rabbits by electrically dried		37°C.		32 days	
By 7 rabbits by electrically dried		37°C.		33 days	
By 7 rabbits by electrically dried		37°C.		34 days	
By 7 rabbits by electrically dried		37°C.		35 days	
By 7 rabbits by electrically dried		37°C.		36 days	
By 7 rabbits by electrically dried		37°C.		37 days	
By 7 rabbits by electrically dried		37°C.		38 days	
By 7 rabbits by electrically dried		37°C.		39 days	
By 7 rabbits by electrically dried		37°C.		40 days	
By 7 rabbits by electrically dried		37°C.		41 days	
By 7 rabbits by electrically dried		37°C.		42 days	
By 7 rabbits by electrically dried		37°C.		43 days	
By 7 rabbits by electrically dried		37°C.		44 days	
By 7 rabbits by electrically dried		37°C.		45 days	
By 7 rabbits by electrically dried		37°C.		46 days	
By 7 rabbits by electrically dried		37°C.		47 days	
By 7 rabbits by electrically dried		37°C.		48 days	
By 7 rabbits by electrically dried		37°C.		49 days	
By 7 rabbits by electrically dried		37°C.		50 days	
By 7 rabbits by electrically dried		37°C.		51 days	
By 7 rabbits by electrically dried		37°C.		52 days	
By 7 rabbits by electrically dried		37°C.		53 days	
By 7 rabbits by electrically dried		37°C.		54 days	
By 7 rabbits by electrically dried		37°C.		55 days	
By 7 rabbits by electrically dried		37°C.		56 days	
By 7 rabbits by electrically dried		37°C.		57 days	
By 7 rabbits by electrically dried		37°C.		58 days	
By 7 rabbits by electrically dried		37°C.		59 days	
By 7 rabbits by electrically dried		37°C.		60 days	
By 7 rabbits by electrically dried		37°C.		61 days	
By 7 rabbits by electrically dried		37°C.		62 days	
By 7 rabbits by electrically dried		37°C.		63 days	
By 7 rabbits by electrically dried		37°C.		64 days	
By 7 rabbits by electrically dried		37°C.		65 days	
By 7 rabbits by electrically dried		37°C.		66 days	
By 7 rabbits by electrically dried		37°C.		67 days	
By 7 rabbits by electrically dried		37°C.		68 days	
By 7 rabbits by electrically dried		37°C.		69 days	
By 7 rabbits by electrically dried		37°C.		70 days	
By 7 rabbits by electrically dried		37°C.		71 days	
By 7 rabbits by electrically dried		37°C.		72 days	
By 7 rabbits by electrically dried		37°C.		73 days	
By 7 rabbits by electrically dried		37°C.		74 days	
By 7 rabbits by electrically dried		37°C.		75 days	
By 7 rabbits by electrically dried		37°C.		76 days	
By 7 rabbits by electrically dried		37°C.		77 days	
By 7 rabbits by electrically dried		37°C.		78 days	
By 7 rabbits by electrically dried		37°C.		79 days	
By 7 rabbits by electrically dried		37°C.		80 days	
By 7 rabbits by electrically dried		37°C.		81 days	
By 7 rabbits by electrically dried		37°C.		82 days	
By 7 rabbits by electrically dried		37°C.		83 days	
By 7 rabbits by electrically dried		37°C.		84 days	
By 7 rabbits by electrically dried		37°C.		85 days	
By 7 rabbits by electrically dried		37°C.		86 days	
By 7 rabbits by electrically dried		37°C.		87 days	
By 7 rabbits by electrically dried		37°C.		88 days	
By 7 rabbits by electrically dried		37°C.		89 days	
By 7 rabbits by electrically dried		37°C.		90 days	
By 7 rabbits by electrically dried		37°C.		91 days	
By 7 rabbits by electrically dried		37°C.		92 days	
By 7 rabbits by electrically dried		37°C.		93 days	
By 7 rabbits by electrically dried		37°C.		94 days	
By 7 rabbits by electrically dried		37°C.		95 days	
By 7 rabbits by electrically dried		37°C.		96 days	
By 7 rabbits by electrically dried		37°C.		97 days	
By 7 rabbits by electrically dried		37°C.		98 days	
By 7 rabbits by electrically dried		37°C.		99 days	
By 7 rabbits by electrically dried		37°C.		100 days	

A comparison of the protective values of the sera dried with care 1 day after, or at 37°C. for 2 days, and then preserved in vacuum over the remaining 2 days, retained all their activity.

It has been shown earlier that passive immunization experiments, with sera dried to demonstrate the different protective properties of variously produced sera typified sera because the test dose of the infecting organism was too small to allow any comparison to be made. Before proceeding to carry out similar experiments for estimating the protective properties of a serum produced by immunization with electrically dried absorbed suspensions of *B. typhimurium* and in order to ensure that these experiments should have some comparative value, it was therefore necessary to discover what test dose should be employed. For these reasons the following preliminary experiment was made.

A number of mice each weighing between 10-15 gms. was divided into three groups. Each mouse in the first group received an injection of 0.5 c.c. of serum No. 9, the second group 1.0 c.c. of serum No. 10, and the remaining group 0.5 c.c. of the serum. Twenty four hours later a living suspension of the virulent strain Ty 2 and its typhimurium was injected intraperitoneally in doses varying from $10^4 \pm 10^5$ to 400×10^5 or five to twelve times the M.L.D. In each case the test dose was administered in a total volume of 0.5 c.c.

The mice were then kept under observation for one week. The results are shown in Table IX.

A comparison of the protective values of the three different produced sera Nos. 9, 10 and 11 with that of serum No. 1 which had been produced by immunizing a rabbit with living suspensions of the virus Ty 2 was now carried out. In view of the findings of the previous experiment it was decided that for this experiment a variable test dose to antigen would be 10 ± 30 M.L.D. or 500 ± 10^5 .

The virality of each batch of serum having been first ascertained, mice in

No attempt has yet been made to estimate the precise quantity of silver necessary for the disinfection of low concentrations of *S. agalactiae*. But as the uncorrected bleeding it has been stated that the quantity of silver entering any solution treated with silver halides bears a constant ratio to the amount of current passing through the solution during treatment. In the course of experiments it has been found that the weight of silver in a treated water was dependent on 2.3 mg. per litre per cm. thickness of current passing through the water, but it is to be expected that the quantity of silver entering this water in treated will vary reasonably with the physical and chemical character of that water. For example with London tap water, when using the apparatus already described, it was found that a current of 1 amp. passed through the water for with an artificially made water the current only needed a maximum of 1 amp. In order, therefore, to obtain consistent and comparable results a specially prepared artificial water was employed in all the following experiments. This water consisted of —

Sodium chloride 5.000 g. }
Distilled water 1,000 c.c. } = Chlorides 5 parts per 100,000

The pH was adjusted to 7.4 with 14 c.c. of 5*N*100 sodium carbonate per litre. This solution allowed a current of 1 amp. to pass.

EXPERIMENTS TO DETERMINE THE MAXIMUM ELECTROLYTIC PROPERTIES OF CHLOROSULFONATES FOR THE DISINFECTION OF *S. AGALACTIAE* BACTERIUM

Experiment

The solution employed was composed of —

50 c.c. of artificial water treated with electrolytes for Ag, EOO ClN and ESO monomers respectively.

A twenty-four hour culture of *S. agalactiae* strain Ty 3 grown on beef bouillon agar was washed off, and suspended in sterile distilled water. This suspension was standardized by counting to 15 × 10⁶ per c.c. 5 c.c. of this suspension was then added to 250 c.c. of solutions A, B, C and D in sterile Wigglesworth tubes which were then placed in a water bath at 37° C. Turbidity tests were made hourly for a period of four hours by measuring the suspension from each tube into broth and measuring the zone width in 37° C. The results of this experiment are shown in Table VI.

Table VI.—Electrolytic Properties of Various Suspensions of *S. agalactiae* Bacterium

Solution	No. of c.c. of artificial water treated with electrolyte	Concentration of electrolyte in solution, in mg./c.c.	No. of tubes of suspension showing zone in 100 c.c. distilled water in 4 hours			
			1	2	3	4
A	1	0.0000	+	+	+	+
B	10	0.0000	+	+	+	+
C	10	0.0000	+	+	+	+
D	10	0.0000	+	+	+	+

+ = Growth in test broth.

— = Test broth sterile after 4 days in solution at 37° C.

It will be seen that the 7 different groups treated for 1 hour, followed with chlorine solution and killed by the same method, contained no organisms (10^6 per g. or less tissue).

The maximum weight of suspension that could be contained in each tube was then later tested.

For this purpose another experiment similar to that just described was carried out using only solutions D with a number of suspensions of *S. typhimurium* which varied from 20 to 10^6 per g. shown in Table II. The results are appended in Table XII.

TABLE XII.—The effect of increasing the amount of *Salmonella* in a suspension on the infection of *Chlamydia*

Amount used in g.	Amount in ml.	Amount of <i>Chlamydia</i> exposed to infected tissue	
		0	10
1	0.0001	+	+
1	0.0005	+	+
1	0.0010	+	+

— = 1 incubation test failed.

— = 10 incubation tests failed after 1 hour incubation at 37°C.

It was found that organisms attached with greater frequency, treated either as described above and after with had been added, gave resistance to *Chlamydia* in the infection test in direct proportion to their attachment with organisms (X, Y and Z).

THE PREVENTION OF INFECTION BY THE PRESENCE OF CHLORINE

The material for a vaccine to have wide antitropic qualities is put at its best by using, very contaminated has been referred to already, but it is thought that owing to the high concentration of sodium chloride in our highest vaccine (3.75 per cent), the bacteriological properties of chlorine (bacteria for such a vaccine might be considered as to be of no practical value). The following experiment showed that this was not the case.

Experiment.

Slabs of sterile animal tissue were packed with chlorine-bath solution for twenty minutes and then added to 0.10 g. of sodium chloride in a very very little previously sterilized sterile container. After being well shaken, a bacteriologically sterile suspension of different dilutions of this vaccine was made using sterile 0.9% per cent saline as the diluent. 10 c.c. of each dilution were then contaminated with 0.1 c.c. of a twenty-four hour old living broth culture of *S. typhimurium* (a culture of 1884-1 of 0.01 per cent saline was treated similarly to act as a control).

A further experiment was made, using a large twenty-four hour broth culture of *Staphylococcus aureus* contaminated. After being contaminated thus, tubes were allowed to stand at room temperature and sterile tubes were made daily for a period of twelve days by inoculating some of the slabs from each tube into broth which was incubated for seven days at 37°C.



FIGURE 1. The effect of silver nitrate (0.001, 0.002, 0.005 and 0.01%) on the growth of *B. typhosa* (strain 10/53) in a nutrient broth medium. The bacteria were inoculated into 10 ml of nutrient broth medium containing the specified concentration of silver nitrate. The bacteria were incubated at 37°C for 120 min. The percentage of viable bacteria was determined by the plate count method. The results are expressed as the mean \pm standard deviation of three separate experiments.

THE MECHANISM OF ACTION OF SILVER NITRATE ON *B. typhosa* IN THE PRESENCE OF VITAMIN B₁₂

It will of course be evident that it is too early to report decisively on the practical application of the silver-katalase process of sterilization of *B. typhosa* suspensions as sufficient has as yet not elapsed to determine the stability of vaccines in the production of which this method has been employed. Investigations regarding the parameters of the synergistic properties of silver and vitamin are being continued.

DISCUSSION

- (1) Bacteria (1966) findings with regard to heat destruction of *B. typhosa* vaccines are not confirmed.
- (2) Silver in the form of katalase or electro-katalase appears to be an effective sterilizing agent for *B. typhosa* suspensions.
- (3) Katalase and electro-katalase have no demonstrable effect on Vi or H antigens of *B. typhosa*.
- (4) Electro-katalase even when used in excessive doses has no detrimental effect on the immunizing activities of Vi antigen.
- (5) Electro-katalase sterilized suspensions of Vi strains of *B. typhosa* are more effective immunogenic agents than those sterilized by heat and glassed.
- (6) The bactericidal properties of electro-katalase though superior to 0.05 per cent silver, are adequate as a means for preserving vaccines.

(1) It was assumed that Fordyce studied suspensions of V. strains suitable for testing for the presence of V. agglutinins in human sera since they are hyperimmune to V. antibody while retaining most of their resistance to inactivation.

(2) In view of the suggestion by Felix that additional antigens with activities similar to those of V. antigens may exist in bacteria other than *S. dysenteriae* it may be found that the electrokinetic protein has an application in the preparation of vaccines generally, particularly those which have hitherto proved ineffective in prophylaxis.

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DIPHTHERIA CONTROL AT H.M. NAVAL BASE, SINGAPORE.

By Captain Commander T. H. WHELAN, M.D., D.S.

Between December 1955 and February 1957 a small but violent outbreak of diphtheria occurred amongst the British children resident within H.M. Naval Base, Singapore. Although only two cases were recorded, of these five died, fatally. The aim of this article is to describe briefly the methods adopted for the control of the disease, with special reference to prophylactic measures. So far as I am aware, the history of diphtheria immunization has been relatively quiet regarding its application to British communities.

At the time of the epidemic the British child population at the Naval Base amounted to approximately 350. I say 'approximately' from an inherent sense of caution when I think that it is impossible to compile the exact figure by any method short of census-taking, and even a census might be defeated by the habit which many an Asian household possesses of entertaining in his quarters without warning, child dependants of any age or ethnic race, who then he hesitates to notify or remove, his child at the threat of any investigation he may regard with suspicion, be it medical or otherwise. For the purpose of immunization the children were 'manned up' by the Local Base Surgeon. The 'manned up' although performed religiously enough, left some loopholes through which the unimmunized could escape, for I think I can say with accuracy that the figure I quoted represents at least 95 percent of the total child community. Let me say also that my figure would record only of children between the ages of twelve months and fifteen years.

The methods for control of the epidemic followed the customary local lines, namely, segregation and treatment of the cases in hospital, admin-

approximate initial sample homogeneity. If the initial sample size is above 100 mg, one can break homogeneity into 100-mg and more than 100-mg aliquots for the analysis. If an aliquot approximates 100 mg, extensive homogeneity of the sample may not be required. Thus, referred to this test and found to sample homogeneity is a simple, useful diagnostic value to assess if necessary. Patterson modified this test, finally, adding to a small quantity of crushed lignite placed in a crucible test tube an equal volume of Lanthan's reagent with which 10 per cent boron crucibles had been added drop by drop with stirring until the crucibles were filled with each drop just barely passed. A drop of the unreacted thick sloughing was then poured out to white filter paper. The result was a central spot of precipitated proteins with a surrounding ring of lignite which was subjected to heat the area immediately over which 10 drops per 100 cc of petroleum spirit were then poured. Boron was found the Patterson spot test of value for detecting retention of urea. Reported this work using the many references. To obtain a quantitative result the desired a submergence method with glass, with blue paper standards.

In this series experiments were made to determine the accuracy of the Fieldron spectrometer and to examine whether a simple calibration method of the spectrometer calibration of 100 cm⁻¹ for the absorption frequency of band covering a range from 0.04 to 0.03 per cent water (Mettler) was satisfactory or not. The method proved inadequate and only the very narrow 0.1% water at one end of the more important chemical range 0.1 to 0.03 was used.

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VITAMINS A AND ITS ANALOGS IN THE NUTRITION

Fig. 10. \log_{10} $\frac{1}{1 - \text{efficiency}}$ vs. \log_{10} $\frac{1}{1 - \text{efficiency}}$ for 100% and 90%.

There remains but always have of present and my estate, as the "Story." At recent years considerable part has been written on the vitamins, and accurate methods of estimating it have been devised. I met and its relation to disease rather more clearly defined. The following article is intended to give a brief summary of the present day knowledge of this vitamin, with its relation to disease, together with some of which I have carried out, or based on an attempt to define its alogous or otherwise of the step contains a diet.

Variant C is found in four individuals. Sometimes the entire trisomy, there being normally only one, but this is all over, variable and so

some extent to poisons and fresh milk. The vitamin C content of milk varies greatly, being greatest during the summer months, whilst pasteurized milk is almost devoid of it.

The vitamin has been isolated and synthesized and has been named *ascorbic acid*, having the formula —



It is a white crystalline compound freely soluble in water (M.P. 140°C.). What is important about it from the practical point of view is, that it is destroyed by heating to boiling point in the presence of oxygen, especially in an alkaline medium, and by drying and is therefore usually absent from pasteurized dried foods. The vitamin can be preserved, however, if the process is carried out aseptically.

If the vitamin C then taken in with the food, some is destroyed in the stomach (much more is lost in the stool, whilst the rest is stored and utilized). It is stored in various places, the peritoneal cavity of the primary contains the largest percentage, followed by the anterior pituitary, adrenal cortex, corpus luteum and testes, followed by liver, spleen, etc. It will be noticed that the largest amounts are found in the organs associated with sex. This is rather striking when one remembers that vitamin E has much the same distribution in the body as vitamin C, and that it is well known to be connected with fertility, but I have not been able to find any further remarks on the subject in the literature. The vitamin is also present in the blood. Some animals can synthesize vitamin C, but man cannot do so.

In the body vitamin C helps in the respiration of cells and in the oxidation and reduction processes, and is responsible for the anti-oxidizing of the intercellular connective substances, namely the teeth, bones and cartilages. As Parsons (2) points out, it is responsible for the supporting tissue cells in the same way as vitamin D is for the osteogenic cells. It will be easily understood that in its double role of regulating all connective and cartilage so far as the colloidal condition of the intercellular substances are concerned and as it, continues in the oxidation-reduction system in the body cells, it is capable of being a basis for every varied condition. Furthermore, this means no doubt more that coupled with thyroxine plays an important part in red cell metabolism. As Parsons says, "throughout the whole range of maturation of the red cell from reticulo-endothelial cell to adult erythrocyte, and not restricted to a small portion of its maturation."

One further point remains, though possibly not one of great practical importance. It is not yet known with any degree of certainty whether vitamin C and represent the whole story of vitamin C. Hardy and Warburg (3) have revealed three cases in which ascorbic acid did not have

an equal nutritive effect as human milk and milk powder mixed in a ratio which is convenient or satisfying again is necessary. It is not clear what is the minimal daily requirement of the infant (1) in one bottle. This varies in health and disease with the amount and kind of material fed out and with other factors, for example, pregnant women and nursing mothers need more, but from the point of view of an adult such cases do not arise about 20 to 50 cases of nursing need no being sufficient, which is questionable about the cases at present in one camp.

I have pointed out how varied the functions of the vitamins are and how essential their presence is to the well-being of the cells. It is not surprising, therefore, that their absence or deficiency may give rise to a number of pathological states which may now be briefly summarized.

(1) *Pemury*. It is not proposed to give any detailed description of this disease. Fully developed scurvy is now almost unknown in the Service though at one time it was almost universal. It is hard to realize how prevalent the disease was. It was looked upon as more or less inevitable and it seems extraordinary that ships were not better able to deal with its incidence. For Richard Huxford states [4] that in the course of twenty years he had known 18,000 cases of scurvy alone. In 1760 the Chesnut Fleet sent 1,077 cases of scurvy to India, and that sent on the *Blonde* between. It was reversible and occurred on any long voyage and a powerful factor motivating against the success of any long sea trip. With the introduction of lemon juice in 1795 the disease on its own scale has nearly become extinct.

(2) *Infant scurvy*. As long ago as 1817 Hux [4] recognized what might be termed a subacute state in children. He realized that there seemed to them but slight human pain and that they responded to specific therapy. Since that time the incidence in various forms has been frequently discussed under various labels—viz. scurvy, scorbutic lymphopathy, etc., and a number of signs and symptoms have been assigned to it, namely tenderness, anorexia, loss of weight, failure to increase, possibly certain anemias, gingivitis and dental caries. It will be noticed that there is a pretty good list, but since the introduction of a more accurate method of diagnosing infant scurvy by blood and urine analysis it is to be hoped that a more concise list may be devised. One condition I must mention here. Among children in general, various skin troubles, especially hives, are frequently regarded as lack of fresh provisions. I have had a nurse who came to me help; she simply told me that one was or very apt to give up to an attack of dermatitis in them. I have not been able to find any reference in the literature to this but the possibility cannot be overlooked.

(3) *Infant and Duodenal I loss*. There is a common complaint in the Service, and, according to the report on the Health of the Army for 1939, the incidence of disease of the stomach has increased. It seems highly probable that in many cases lack of vitamin C has at least been a powerful contributory factor in cases of gastric ulcer. In this respect, Archer and

Griffin [3], remembering that the wounds of patients with scurvy healed badly thought that the cause of such a failure in these cases might be due to the depletion of vitamin C from the body and decided that we cut of some patients with gastric and intestinal ulcers were definitely suffering from vitamin C deficiency. One important practical point emerges that is to ensure that patients being treated on milk and alkali diets have a sufficient supply of vitamin C, either in fruit juice or in synthetic ascorbic acid.

(4) *Ironing*. The subject thought of very great theoretical interest can be discussed briefly. During the formation of connective tissue vitamin C disappears from the liver and appears in urine. It is assumed by the altered composition of the liver, it being together with glycogen, the main energy reserve substance in living tissues. Pincus makes up compensation by saying that although the administration of ascorbic acid to patients suffering with cancer has not been found to have any influence on the development of the disease, it is interesting to note that the disease is much less prevalent in the poor classes whose diet is probably deficient in vitamin C.

(5) *Acute Rheumatism*. There is a certain amount of experimental evidence to show that acute rheumatism does in the result of infection resulting with vitamin C deficiency, and the disease is very much commoner amongst those whose diet is as faulty as this and other reports, and there seems no doubt that the daily secretion of vitamin C in rheumatism fever patients is notably low [7]. There seem fairly well established facts, and a considerable amount of work has been done and a good deal written on the subject. After reading these numerous and somewhat conflicting reports, I think that one can fairly sum up the situation by saying —

Rheumatism does to much commoner in those deficient in vitamin C although it would be rash to hold it any more that a contributory factor. That the rheumatic patient has a low excretion of vitamin C, and an increased need for it.

(6) *Dental Disease*. The acid character of scurvy has well known basis [8] claims that by giving large amounts of fresh vitamin juice he was able to cure gingivitis and wound ulcers in 50 per cent. of children. In the present state of our knowledge I do not think it is possible to say much more than that.

(7) *Vitamin C* has been put forward as a possible contributory factor or as a therapeutic agent in a number of diseases amongst which may be mentioned Addison's disease, dyphtheria, postscarlet, and various hemorrhagic states. It must be remembered that sometimes this infection and appears both in an increased usage of vitamin C by the body, and possibly to a decrease in excretion of vitamin C by the kidney, and in the second the old habit of giving lemon to sick people would appear a sensible one. In these trials it is curious to find that the deficiency of the vitamin is a causal factor in 50-60 diseases other than scurvy and the laboratory studies.

M. J. Rupp, Owner

Investigation into the Pharmacology of Vitamin C (Ascorbic Acid)

Analysis

The authors first took known pure ascorbic acid, 100 mg. and estimated its pharmacology as a whole, by the following method. Vitamin C is a water-soluble, non-toxic, and non-accumulating substance. It is a weak acid, and its salts are soluble in water. It is a powerful antioxidant, and its salts are stable in the presence of oxygen. It is a powerful antioxidant, and its salts are stable in the presence of oxygen. They examined the specificity of the method, and concluded that the following substances or some of them: chlorophyll, carotenes, and glutathione, and ascorbic acid, do not for practical purposes, interfere with its activity. Finally the assay is related with the dye as an acid solution to an acid group when the dye is decolorized, and when the dye is decolorized, and a certain level depending on the past intake of vitamin C when ascorbic acid is added should occur: about 11 or 14 mg. per day. Results below that level would indicate a deficient vitamin C intake. A test dose of about 500 mg. per 100 mg. body weight per day is then given and the response noted depending upon the degree of saturation of the subject. If the subject has been for some while kept depleted of vitamin C then a certain amount will be retained in the body.

Large data emerge from this, which may be briefly stated thus: Normal people have a reserve supply of the vitamin, and continue to excrete it after the supply is cut off. The mean of normal adults shows a constant daily output of 50 mg. When large doses are given to normal people there is a rise in the amount excreted in the urine. In people suffering from a deficiency of the vitamin, the daily excretion is diminished and there is no excretion after the test dose, as it is retained by the body until the body becomes saturated.

In conclusion one might add that other methods of estimating vitamin C deficiency have been evolved, namely that of the estimation of ascorbic acid in the blood and the intradermal test which depends upon injecting a known quantity of the dye intradermally and taking the time for its disappearance.

Experimenting With Guinea Pigs as Subjects

The experimental work carried out consists of two groups of work done upon groups of the ship company during from different sources. The first group was carried out in February, while the ship was in Alaska and the second at the end of April while the ship was in the South of France.

Group 1—This group consisted of 1 boy, 4 ordinary women, 1 B.A. 1 cook, 1 nurse, 1 on board of medicine, 1 leading seaman, 1 P.O. and 1 C.P.O. The first stage, to establish the reduction value of the urine in mg. per cent of ascorbic acid, was carried out as follows: Each person was at 8 a.m. 15 ml. 10% and 5% per. Of these samples the 11 a.m. and 3 p.m. samples were labeled, the rest discarded. Next day urine was

sample in 5 c.c. and 31 p.m. and the second sample taken. One half c.c. of the sample is 2 c.c., which were injected against the dye and 1 c.c. was taken.

This was carried out as follows: 1 unknown tablet of the dye (equivalent to 1 mgm. of vitamin C) was dissolved in 50 c.c. of water. 5 c.c. of this solution was transferred to a glass and 1 c.c. of glycerol acetic acid added.

1 c.c. of this was then run on from a burette and the amount of urine required to discharge the colour within one and a half minutes noted. From 10 c.c. of urine were required for the 5 c.c. of dye, then 4.6 c.c. of urine contained 1 mgm. of vitamin C, and 100 c.c. would contain $21 \pm 1 \frac{1}{2}$ or approximately 22 mgm.

After the last urine sample a test dose of 500 mgm. of reduced benzoic acid (Rush) was given, and the urine again timed after four hours.

The results obtained were as follows:—

No.	Sample	Retention value, Vitamin C mgm.		Retention value, 1 c.c. of urine, reduced benzoic acid	
		1 c.c.	2 c.c.	1 c.c.	2 c.c.
1	Unknown Solution	0.7	0.7	0.0	0.0
2	5 c.c.	0.1	0.1	0.0	0.0
3	5 c.c.	0.4	0.4	0.0	0.0
4	5 c.c.	0.7	0.7	0.0	0.0
5	5 c.c.	1.1	1.1	0.0	0.0
6	Reduced Benzoic	1.6	1.6	0.0	0.0
7	Marion	1.4	1.4	0.0	0.0
8	Cash	0.7	0.7	0.0	0.0
9	Unknown Solution	1.0	1.0	0.0	0.0
10	Unknown Solution	0.6	0.6	0.0	0.0
11	C.P.D.	1.7	1.7	0.0	0.0
12	Unknown Solution	1.0	1.0	0.0	0.0

The retention value of the urine after the administration of the vitamin is the old one to double the normal figure. It will be seen that in many cases this did not occur, and in a few cases only a slight rise was obtained, indicating that much of the vitamin was retained.

Group B.—The simplified method, which is considered sufficient for use in general practice, was adopted. Fifteen ratings were estimated from four different bladders as before. The procedure carried out was as follows:—

50 c.c. of water was put into a metal bath one tablet of the dye (equivalent to 50 mgm. of vitamin C) was dissolved in it. To this was added 50 c.c. of urine. The patient was given 5 reduced tablets. Five hours later the procedure was repeated.

Now, normally, the colour should not disappear when the first lot of urine is added, but should disappear after vitamin C has been taken and should not take more than half a minute to do so.

This was carried out on fifteen ratings. In only three was the dye unchanged after taking the vitamin C, in the others the colour remained unchanged.

It is hoped (until the health of the women ship) to be heard to believe that, my concern is dependent on men's deficiencies in general, and a much more be looked for to increase their figures. The figure in the general nursing system. Fresh test made as analysis, upon "military" or continuously group first, is based on an average about twice a week. Although not added to the vegetables in cooking, except in the case of potatoes (occasionally used). The diet appears both balanced and appealing and would appear to contain quite an adequate supply of practically, both fresh and cooked.

It is suggested that: (1) Naval personnel are accustomed to rather more physical exertion (and therefore are more vigorous) than their bodies than the patients for whom the figures were originally made out. (2) That the suggested test done at 350 miles of exertion and although perfectly satisfactory for the average seaman is probably too small for the average soldier (fully built soldier). In this respect it may be noted that two of those who gave what is considered an adequate response in the second group of experiments were boys. (3) It does, however, serve to show that in all probability the average supply of calories and in naval ratings is not notably high, and that it is important to make more satisfying from patients than to see that a sufficient supply is given. (4) That the remark in "Naval Hygiene" (12) which states "when men complain of debility, and lassitude and an obvious state of apparent, a possibility of vitamin deficiency, especially in the Tropics should be considered as probably very true in view of recent work on latent energy."

It might be interesting to see how results obtained in other ships or other vitamin compares with those, and if the statistics vary much in their regard.

I might add that the fact that the large part now record in an average was conducted against a test not generally known by the ship's company or even by the officers, and unless both may sometimes be put in it in that respect, especially in ships engaged in detached service.

In conclusion, I have to thank Rache Pridmore Ltd, for their generous supply of the dye and of vitamin C and for their helpful advice in carrying out this work.

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THE FORTH INTERNATIONAL CONGRESS OF RADIOLOGY
(THE 19TH ST. LOUIS, 1904)

by Sir James Macdonald, F.R.S., and Dr. J. J. Thomson

It is like to appreciate fully the immense importance of such an immediately large and scientific meeting as the fifth International Congress of Radiology, perhaps it may be of interest to sketch at the same time by giving a very brief account of the history of *x* rays before entering the numerous advances that have been made up to date.

In November, 1895, the famous scientist, Roentgen was experimenting with partially evacuated tubes by passing an electric current through the insulating glass. His hand rattled up to approximately 10,000 volts. He found that, as he lowered the pressure within the tube (i.e. increased the vacuum) a new type of radiation appeared. He found also that even if the discharge tube were shielded with black paper, so as to prevent the entrance of light rays, so-called luminescent plates, sensitive luminescent materials and even when other objects such as wood or books were placed between the discharge tube and the luminescent plate, contained in fluorine, but when heavier substances such as lead were put in the way, the penetrating power appeared to be arrested. (Lead is now the recognized form of protection from *x* rays in workers and patient skin.) It was not long before roentgen rays, as they are now called, were discovered to be similar to wireless waves, heat waves, visible light, ultra violet light and the gamma rays of nature and that they could also blacken photographic plates. Soon they were being employed as an aid to diagnosis and treatment in surgery, medicine, gynaecology and, in fact, made every branch of medicine. Today roentgenotherapy is employed not only in the treatment of various new growths, but also in almost every known infection—the example pneumonia, infection of the nasal antrum, various chronic forms of pulmonary tuberculosis, arthritis, osteomyelitis, of lungs, emphysema, pleurisy, abscess, furuncles and carbuncles, and even gonorrhoea also for suppressing or sterilizing bacterial infection. Radiology has made it possible to study and measure the living organs, a vital and abundant of man and beast, and many of the accepted methods of the past have had to be revised in the light of this new science. Radiology has passed through several distinct periods in its evolution in general medicine. During its early formative years it was looked upon as a black field for the charlatan and was scarcely accorded a place within the medical field. Following that, for a comparatively long period radiology was accepted by the medical profession as a laboratory method of only limited value, whose practitioners, even when they held medical degrees, were little more than isolated scientists in their professional activities. Within very recent years radiology has become fully established as a specialty of medicine, and the theme adopted by the Fifth Interna-

These Congresses are *Inter-University of Medicine*, although it is a happy fact that basic radiology concerned for all and not only as a specialized specialty but also to cement its relationships with other branches of medicine that it will become a permanent part of a completely unified profession.

Three International Congresses of Radiology are held at three year intervals in the principal cities of the world, the first being inaugurated in London in 1928, and have for their object the development and advancement of medical radiology by giving radiologists a definite occasion to appreciate the personally radiating their experiences, exchanging and discussing their ideas and forming personal bonds with their colleagues. The meetings of the Congress are reserved for radiologists dealing with the following branches—conspicuousness, radiobiology, radiotherapy (front, pneumothorax, chemotherapy, radiotherapy), medical electrodynamics, radiophysics and associated branches. Each a world wide important matter is international unit of dosage was adopted at the Third International Congress in 1931 and at the Fourth International Congress a complete report of the standards of protection was made. Each of these committees will undoubtedly continue their studies in order that the practice of radiology may keep step with the scientific and technical progress in the physical and mechanical fields, and their reports will become a part of the published reports of each International Congress. Two sessions which covered special situations at preceding congresses: The Fixation and Freezing of Radiologists and The Treatment of Cancer, sessions of nearly and vast masses to the radiologists, and both covered subsequent sessions at the Fifth International Congress.

The Fifth International Congress of Radiology was held at the Prince Henry Hotel in Chicago, Illinois, under the direction of an international executive committee consisting of the following—all world famous for their past work in the nature of radiology:—

- Arthur C. Guyton (Chairman) Washington, D.C.
- L. Harrison Mitchell Liverpool, England.
- Clayton Corwell Stockholm Sweden
- Augusto Molino Paris, France
- Hans K. Schmitt Zurich Switzerland
- Karl Erik Berthel Göttingen
- Mario Pavesi Florence Italy
- Takaozo Matsuda Osaka Japan
- Reuben Teller-Piacenza Barcelona Spain
- Gustaf Johner, Vienna Austria

As far as can be remembered there were over two hundred American radiologists and five hundred foreign representatives and delegates of almost every country in the world.

A reception in honor of the foreign guests and delegates was sponsored by the Chicago Foreign Society and held on Sunday afternoon, September 12 to afford an opportunity for those wishing from various

actions to meet their American colleagues and other distinguished members of the American medical profession. The opening session of the Congress began on Monday with addresses by Hans K. Bohm, President of the Fourth International Congress at Zurich, Switzerland, Arthur C. Christie, President-Elect of the Fifth International Congress, William J. Mayne of Rochester, Minnesota, Gustav Forrester, President of the Second International Congress at Stockholm, Sweden, and Antoine Delsens, President of the Third International Congress at Paris, France.

Each day there was a programme of lectures approximately one hundred in number, to choose from, given in all languages and covering the following subjects: roentgen diagnosis, radiotherapy, radiophysics, radiobiology, electrodynamics and light therapy. It was a matter of some difficulty to select those lectures which would be of most benefit, since it often happened that two or three lectures were delivered simultaneously in different parts of the building. All kinds of medical sciences were covered. The majority of lectures were devoted to diagnostic studies with the help of excellent the films, lantern slides and cinematograph films, whilst the demonstrator was lecturing in his own language simultaneously an exact interpretation in French and German (or English) appeared on two side screens. One of the cinematograph films which proved of great interest was 'The Movements of the Oesophagus, Stomach, Duodenum, and Pancreas,' by Bennett J. Reynolds of London, which showed, not only the anatomy of these organs, but demonstrated the acts of contracting of the barium food and passing into the stomach (peristaltic movements) and the effects of delay on the stomach and contraction of the duodenum wall on the stomach. Cinematography will undoubtedly play an important role in the future and be of great benefit to the science.

To enumerate the five hundred odd lectures which were delivered during the Congress would be too largely a procedure, but such dominating subjects as radiography or cancer in all its known forms—its diagnosis, its treatment with x-radiation and radium therapy—and also the functioning, normal and pathological, of the gall-bladder, kidneys, heart, alimentary tract and all special forms of diagnosis—diagnosis of the skull and intra-cranial lesions, lungs—angioma, non-angioma and interstitial; the physics of radium, production of a ray, transformers, electrical insulation, constant potential, the measurement of a ray—quantity and quality—films and methods of obtaining; no intensity above the characteristics of radium and radon and dosage tables for surface contact and internal radium—are but a few examples of the subjects covered by lectures.

Mention must be made, however, of a few of the many outstanding lectures such as 'Cancer of the Larynx,' by Henri Gougeon, who states:

In no other part of the body than the larynx does one find gathered together all the points of anaplasia, types, histologically descending from the modified epithelium of mucous membrane type—initially undifferentiated or slightly differentiated, particularly to the epithelium of cutaneous

type, very differentiated and adhering with epithelial points. The causes of cancers and leucæ have been referred, for one part, to the diversity of histological types—some being more malignant than others, and, for another part, to the conditions of treatment. In cancer of the leucæ, the influence of the leucæ is of much lesser importance than the histological type. Thus it will be seen that, from a point of prognosis one should know the nature of the cancer.

It is interesting to compare two such great authorities as Hensle Constant of Paris and Dr Douglas Quirk of New York, who also lectured on "Cancers of the Leucæ." The results to day in carefully done high-voltage therapy of extensive cancer of the leucæ, supported especially by the results obtained by this means during the past five or six years and built up on the robust experience of the past, justify total hypogonadectomy for the cure of this disease in operation of the past.

In his lecture "The Use of the Roentgen Rays in the Diagnosis and Treatment of Tumours of the Bladder," Dr George E. Parker of Philadelphia states: "The roentgen rays certainly hold the first place in the treatment of inoperable carcinoma of the bladder, and may be found superior even to the operable group. Combined internal and external irradiation can be used to advantage in some cases. About one third of the cases that have been treated seemed to recover."

Wm. Westermann of Stockholm in his "Roentgen Carcinoma in Roentgen Pathological Society," says: "Carcinoma of the bladder does not show directly in the roentgenogram until a very advanced stage, but the fact that it grows more or less pronounced heralds of disease in that a possible, nevertheless, in diagnosis it relatively early through roentgen examination."

Roentgen carcinoma seems in recent years to be relatively more frequent in Sweden than formerly. Thus in my material cancer of the stomach shows in 13 cases as often as cancer of the bladder, while in Nyström's material for 1913-1919 stomach cancer occurred 74.5 times as often as cancer of the lung. The average age for the occurrence of the bladder carcinoma is somewhat less than for cancer as a whole, but not less than half of the entire cancer patients were under 50 years old. The disease is more frequent in men than in women. In the author's material the ratio is 10:1.

In "Rural Tumours in the incidence of Carcinoma," Dr G. Lenfant Chénin, of London, deals with the importance of a thorough general and detailed study of the rural incidence of cancer, and demands the necessity of studying the family history as well as the rural history and pointed out the bearing of these factors upon prevention of the disease. He further described the incidence of cancer in China, Japan, Switzerland, Holland and England, with special reference to continuous living in Russia, Japan, and China.

In an interesting study of 309 cases of "Carcinoma of the Oesophagus," John T. Farrel, Jr. of Philadelphia, states 1934: "Neoplasiology

From the new venture named the World Radiology Association, there comes a new, an improved, a new procedure, the so-called "Tanner" or the "Tanner-Rosenberg" method, in which the diagnosis is very accurate. It is agreed that the earlier malignant tumours are detected, the greater the chance of recovery. Radiation has not been successful in treatment of the oesophagus, and at present hope for the future seems to lie in surgery. Unfortunately most oesophageal tumours are far advanced when the diagnosis is made, and surgical removal almost always difficult or usually impossible. If results of treatment are to better the diagnosis must be made earlier.

The idea, worthy of consideration, was expressed by Arthur W. Erlanson of Cedar Rapids, Iowa, in speaking of an experiment in cancer education. He said:

In 1914, out of a total of 4,616 deaths from cancer in Iowa, only 55 persons died from cancer of the chest, and only 23 from cancer of the hip. The realization of the death rate in these two conditions, which I find in every a quarter of a century ago, has been possible because I have been learned that cancer of the chest and hip is curable if treated early by safe efficient methods and inexpensive methods, and the medical profession has learned to advise such procedures as the patients are willing or able to accept. There are now between 1,500 and 1,600 methods devised from cancer actually in Iowa. These have could be used if the patients could have the benefits of such methods as are now available in almost every community. There is the power of the conventional instrument of cancer. It is delay that defeats us, delay by the patient or the physician. From a practical standpoint, we might now be more wisely employed in devising methods of reaching or reducing the delay, than in perfecting the technical details of our own art. Since the measures already proved to be effective in the control of cancer of the chest and hip can be extended to other types of curable cancer, a nationwide, carefully controlled programme of lay and professional education has been organized. The attention of the medical profession is being called to the standard methods of the diagnosis and treatment of cancer and also to the fact that there are a economic, social and geographical problems to be solved in the rural areas that do not exist in urban centres. Laymen, especially members of women's clubs, are being taught the facts which every intelligent person should know about cancer, and they are being urged to help disseminate these facts. Finally, they are being asked to support the programme financially. I am in an ideal laboratory for an experiment in personal education in cancer because some of its people is illiterate. They have more than average intelligence, still have confidence in the medical profession and are most willing to co-operate with it. Thus there is large scope.

The treatment of Hodgkin's disease by radiotherapy was admirably dealt with by Miss Gilman of Canada. "The diagnosis, as early as possible, must be based on a biopsy whenever possible. The extremely early stages especially in cases clinically doubtful, is essential to the proper

and with studies of prognosis. Last known in particular (1911-1912) conditions, and (4) various observations of value that the numerous clinical efforts be adapted to (3) in particular. Hence the clinician. The radiotherapist must do the work of a competent physician. He must know the disease well in its many manifestations, its course, its extension, its types and evaluative capacities. It is for this reason that the author reserves the first part of his report to a review of the nature and clinical characteristics of the disease. He later studies the mode of action of radiotherapy on the granulomatous ganglions and extrapneumonic lesions, the different degrees of radioactivity, as well as the acquired radio-resistance, conditions generally due except in advanced cases, to radiotherapeutic accidents usually to spread and repeated small doses.

Then Heilmann, of Frankfurt makes the following observation:

"Hence, as it is universally known, the various malignant growths differ in their response to radiotherapy, in order to estimate the efficiency of a method to exclude from the beginning, a series of tumours which are easily treated, such as epidermoid, cancer of the lip, cancer of the breast, mucous gland cell tumours. These are various entities, such as cancer of the breast, of the cancer of the tongue and of the larynx, the complexity of which has been shown today in a large percentage."

In addition to the daily lectures and general sessions, there were a series of special educational courses from 8 to 9 a. m. each day, which covered such subjects as: "Cancer and Radiotherapy," by Elton Coulter. "The Use of Radiation Therapy in Gynecology, Diseases," by James Hopley, of London. "Problems in Extrapneumonic Diseases," by George W. Hedges, of Boston. "The Fundamentals of Roentgen and Radium Therapy," by Harrison Heilmann, of Frankfurt. "Roentgen Diagnosis in Gastroenterology," by R. K. Kohn, of Rochester, Minnesota. "Special Problems of Radiation Therapy relating particularly to Treatment of Cancer of the Cervix and Cancer of the Breast," by Edwin A. Moseley, of Washington. "Diagnosis of Islets and Intracranial Lesions," by Merrill C. Schmitt, of Boston. and "Elementary Physics of Radiation," by J. L. Wetherill, of Philadelphia. One of the chief advantages of the Congress was the opportunity afforded of getting first-hand information from pioneer workers and of seeing demonstrated in a lecture these particular specialties and of being able to discuss with these men of experience one's own particular problems and difficulties.

An interesting feature of the Congress was the extraordinary display of radiographic films which covered every field of the course. It was not necessary to select the subject of most interest to oneself, and then proceed to select that subject was being demonstrated. Here one found the radio-lesion, whose particular work was being exhibited, and who was only too pleased to demonstrate and discuss his films. More often than not there

were several other members who would gather round a particular exhibit for an informal discussion in which one could join. These discussions were undoubtedly of great benefit, because it is only on occasions such as these, when men interested in one particular branch of a great science are gathered together to discuss their difficulties, that much personal knowledge and friendly advice are exchanged. There were many new and ingenious ideas presented and demonstrated, all moving in the fundamental object of trying to disentangle and interpret the numerous chaotic superimposed upon a single radiograph. The diagnosis of an x-ray film has always been a matter of pure deduction. To this end the radiologist has selected the help of various chemicals in various special cases. The use of the roentgenograph has also been applied to demonstrate movements, actual and pathological, of hollow organs (stomach and bladder, *etc.*), also the movement of joints.

The kymograph was also demonstrated, and the latest contributions to roentgen diagnosis, which are the kymoscope and kymograph. With this instrument one is able to see the movements of the heart, although actually only a single film is taken. (The subject is fixed so that during its a special picture of its own.) The movements are shown without any movement. Fast movements which escape the visibility can be fixed as well as the very slow movements which the eye does not see. It is extremely useful in diagnosis of the heart, lungs, stomach and large bowel movements and perfusing. Any one of these subjects would fill the capacity of any radiologist as another and becomes a study in itself.

Not only were these measures taken done for diagnosis, but photographs of various diseases before and after treatment. Some cases chronic, some benign and the removal of skin ulcers on a roentgenograph film. The exhibition was in fact and of such interest and on such diverse subjects that it was impossible to study more than a limited number in the time.

The technical exhibits were a joy to the physicist. One of the outstanding features was the manufacture of shock-proof apparatus by means of all nations. There were demonstrated machines designed to operate at voltages ranging from 10,000 to 100,000 volts, which despite their size were really gracefully proportioned and neatly finished and were easily manipulated into position by experienced helpers. William D. Cragg, of New York, tells us that '... there are several types of x-ray units now operating successfully at voltages ranging from 100,000 to 1,000,000. These in which any part of the high voltage circuit is brought into the open air, as of necessity, as large as to require a special building to house them.

A story could be written on the progress of the development of the x-ray tube alone, such technical studies as their construction have been made, the perfecting of which still continues. All the accessories such as switching circuits, lead protective aprons, goggles and gloves, insulating screens and films were exhibited in much improved form. One left the room that here were two complete doctor and physicist.

of operating for the benefit of a patient. Men of all nationalities were gathered together here, endeavoring to produce better methods, better technique and better results, all in the name of man and political purposes being completely on one side.

This was particularly noticeable in the social aspect of the Congress. Every night a banquet was given by one or other of the different American Psychological Societies, followed by a lecture of general interest and was often finishing up with a reception and dance. These occasions were particularly well organized and conducted and afforded excellent opportunities for making friendly contact with fellow members. On the closing night the President spoke of the extraordinarily good attendance and of the three-day sessions represented—"indeed, he said, had come from all parts of the world some as far distant as New Zealand and Japan (the West Indies, in a surprising no more, was represented solely by Trinidad) and he hoped that the knowledge made would prove, and that science, which knows no barriers of religion, race or nationality, would prove the ultimate benefit. On the question of education, the importance was stressed of the endologist being well versed in medicine, surgery, and pathology, as well as his own subject, since, being of such importance, one to the other the study of any one of these big subjects cannot afford to be neglected.

In conclusion it would appear that the scope of the endologist or biologist each great reader have been made more the discovery of the new energy that one feels the whole subject still to be in an embryonic state and that the future will reveal new ways and means for the application of these facts which will help to alleviate the sufferings of mankind.

Throughout the entire Congress the friendly atmosphere prevailing colored the treatment of the subject of much of its interest and, on breaking up one left heart with the stress of so much knowledge assimilated, but happy in the thought that one had made many friends and gained accurate knowledge of latest value to students and enable one to carry on as a small participant in this great work.

AN ENTERTAINER FROM A LONELY POINT OF VIEW *

By GEORGE GEORGEON H. FENN, F.R.C.S. (LOND.)

IT WAS surgery and anaesthesia have gone ahead together consistently during the past ten or six years. Unfortunately, the former surgeon has not always had the benefit of the advances in anaesthesia. If I accomplish as much by this paper, I hope I shall have drawn attention to the way that the devoted surgeon has suffered at the hands of the general practitioner. There are still many patients who demand that their general practitioner shall come to see them the first. Apropos of this one very honest general

* From a paper read before the Southern Counties Society of the British Medical Association at Reading.

practitioner, who always seems to get out of the worst of things, told me that he was called in by and for a given case. He was shown a harmless machine! Some sort of harness was fastened to the patient's head and the wires turned some levers. The patient went to sleep. The tooth was extracted, and the wires turned the levers back. He inched out rather quickly with his feet in his pocket.

Gas is always regarded lightly, it is easy to get your patient under, but how few people seem to realize how easy it is to get him right under just a little more—and he is dead! It is not the safe anesthetic that it is often thought to be. The old apparatus for administration of a single dose did not allow of much over-closing. The new machines giving continuous N_2O and O have shown that in unskilled hands there is grave danger to the life of the patient.

In this paper I am not considering the extraction of a couple of loose teeth. I am thinking of the case where several teeth are to be extracted or perhaps just one suspected wisdom. No one can tell—it may be done in five minutes or may take an hour.

What does the dentist require? His work is essentially more easily accomplished in his own rooms, his own chair. The patient must be quick and strong—the work he must be under for anything up to an hour. On the other hand, he must be able to remain motionless after half an hour's rest. This perhaps is the crux of the whole thing.

Ether and chloroform following to the same necessity to recover—also there is a serious danger in chloroform when given to a patient as a chloroform vapor is a possibility but of course it is difficult to count on this alone for more than fifteen to twenty minutes. In addition, an anesthetic must be maintained, and a mouth pack is essential for modern operative technique. Therefore even with ether some further apparatus is required. It leads down to this, that the gas must be administered easily and by a nasal tube. Pressure cannot be maintained by the usual nasal pad, also this does not allow of pushing the back of the mouth. The nasal tube must reach down to the epiglottis.

Now normally much time was lost between getting the patient under with the ordinary first gas—taking the oil—and passing your nasal tube. Often some other had to be given to get him sufficiently under. Indeed, in any case, a little spraying of the throat with cocaine is a great help as it stops coughing and reflex spasms on passing the tube, and on placing the pack well back in the throat.

Mr. Charles King has made for some of us a piece of apparatus illustrated herewith, for the better administration of nitrous oxide and oxygen.

By its use a new method of administering gas anesthetic may be used. The apparatus, which can be adapted to any satisfactory gas machine, consists of two delivery tubes emerging from a head with a three way valve. The purpose of the anesthetic gas being delivered. (1) To the

is used with the mouth and nose simultaneously. It is the reverse only. The nasal delivery tube ends in a nasal mouth substitute of special design which permits easy access to the nostrils when it is in place. The nasal delivery tube ends in an attachment to accommodate either a standard nasal substitute or a nasopharyngeal tube.

The method of using the apparatus is as follows. Induction is gained by administering the gases through the mouth only, the nasal mouth substitute being placed in the position. Mouth only. The patient is asked and encouraged to breathe easily and out of the mouth when a mouth piece has been inserted. Any nasal breathing can be checked by gently compressing the nostrils.

When anaesthesia has been induced it can easily be maintained for as long as is required, while the pharyngeal substitute is passed through the nostril or nostrils and secured in place; the gases are then passed through nose and mouth and normally for a moment while anaesthesia is checked. As the tubes are then turned to 'Nose only' the mouth substitute dropped and the mouth packed off with gauze preparatory to the commencement of the operation.

The advantages claimed are: (1) The passing of a nasopharyngeal tube with all its attendant advantages can be perfectly accomplished without either undue force or resorting to rigid standards, as, with its obvious disadvantages to the average dental patient. (2) Simple nasal tubes, such as Hayler's tube, may prove, as he used in a similar way. This consists of two curved metal tubes for insertion into the nostril and is much more easy to maintain in position and adaptation than the average nasal substitute. Induction is gained via the mouth, as described above. (3) When it is desired to use the ordinary type of nasal substitute, the mouth substitute temporarily assists in obtaining induction. (4) The very wide bore supply tube to the mouth substitute enables induction to be gained with great rapidity and with no feeling of resistance or discomfort, such as is associated with small-bore tubing. The apparatus has been made by Messrs. Charles King, Ltd., of Devonshire Street, London.

The new apparatus which we wish to demonstrate to you today allows of anaesthesia being induced with the mouth only covered, thus leaving the nose free entirely, so that the nasal tube can be passed without giving rise to any difficulty. Inductionally if any of you like to try it, gas is much more easy to take by mouth alone than by nose alone. You note the rather unpleasant nasal stuff. A little air goes in through the nostrils during induction but not enough to matter. It is easy to say that after the patient begins to go under, to push the nose and stop us having inserted this way. Mr. Thompson induced Messrs. Charles King to make this new patient apparatus. The effect of gas going to the mouth alone—to the nose alone, or to the nose or mouth by the nose, moving of a tube.

The dentist should place the patient's head in the best position for his operation, so long as this does not interfere with induction. There are

spring-loaded valves on the inhalation and on the mouth mechanism. It is simply not possible to hold these below water. The subject is now lying down, head at the hypnosis couch and the 10-lb. gas mask is connected to the apparatus.



FIG. 1



FIG. 2

connected to the apparatus. The subject is now turned to mouth and nose. The mouth is kept open before induction and a finger is passed into the mouth to make certain that the tube is far enough down and not

(b) (c) If we let it stay in blowing gas down the trachea. If not (b) enough, a well-placed mouth pack will shut off the air-way completely.

Having made certain of the position of the tube, the head of the mouth is well packed with slightly damp gauze. Dry gauze has been found to irritate the throat, and often causes the patient to cough up the throat in recovery. The trachea is now turned over to the nurse only, and is not for breathing should be secured in the legs and also in the supinator tube.

The position of your pack and its efficiency is important. It serves several purposes: (1) It prevents the escape of air. (2) It catches all the blood-casts it up. (3) No danger occurs from fragments of teeth or bone falling back into the mouth. The pack should be placed well back behind the tongue and should prevent any expansion of air. With a well placed pack often 8 to 10 percent of oxygen can be maintained forward of half an hour. Some people imagine that you cannot pack the back of the mouth unless the tube is passed into the trachea. That is not our experience. It seems to me that the passage of the tube from the nose down the trachea exposes the patient to inevitable risks. Infection may be carried down by the tube. Very troublesome spots of the pharynx may be set up sometimes so severe as to call for tracheotomy. If equally good results can be obtained with the tube in the nasopharynx, why take further risks?

Now some may ask: Why not give ordinary nasal gas? Cases will be quoted where "X" was kept under the twenty minutes. Unfortunately results are scarce. No two patients are alike under an anæsthetic. There is no individual reaction to the anæsthetic. What would kill one man, will harm another and bring about your efforts.

In nasal intubation I always try to induce an nasal gas down and have the mouth uncovered. The patient is told to try to use the nose alone. How often they go under perfectly breathing nasally only. Instructions are started—a gas mixture is sent to the brain and a gas through the mouth is the result. A few more mouth respirations and the patient is half raised. Then I think is the best point to hand you. In addition, all blood has to be sucked or spooned up to prevent a flow going down the throat as packing is impossible. There is also a tremendous waste of gas and oxygen making it a most extravagant method.

Krupa has been referred to as a theoretical induction whatever the time needed for operation as it is so easy to carry the anæsthetic so with gas and oxygen absolutely. Krupa is not referred to in the paper only deals with anæsthetics in the dentist's own rooms, it is an ideal anæsthetic for the nursing home. Krupa is a barbiturate, it is quickly eliminated and the patient often remembers nothing of the induction whatever. Full consciousness is reached in anything from thirty to sixty seconds from reaching the ceiling of the vein. Its only drawbacks is the reaction at time of recovery. Some people are fully roused and perfectly able to go

have within half an hour of operation, others require a considerable anesthesia for one hour and a half hour. Respirations and pulse are usually quite unaffected by oxygen. I have had one or two gas patients themselves who were quite fully with gas. These have been entirely satisfied by oxygen without the slightest anxiety. Owing to the difficulty in obtaining time of recovery from oxygen, many dentists will not consider it. I feel that at least it has a place as an anesthetic agent in small cases, and the anesthetic can be carried on by means of gas and oxygen by a small machine. I do not consider that oxygen should ever be given by itself as dental anesthetic—a small machine should be passed on order to secure a free air way. This also enables gas and oxygen to be turned on at any moment.

PAINKILLING

In ordinary dental operations no premedication is really necessary, and so I think it advisable except in specially nervous people—barring it should never be prescribed before first seeing your patient. If there is any chance whatever that ether may be used, ½ gr. of scopolamine should be given half an hour before the operation. Nonfatal, ½ gr. half an hour before the operation is very useful in gas and oxygen cases where the patient is very large and strong, as it gives him a feeling of contentment. Lanthan also about 1 to 2 gr. is useful in children.

What on the subject of premedication I should like to mention is giving the throat with 10 per cent. cocaine in cases where the nasal catheter is used. It prevents coughing on putting the tube. The patient can be kept under ether and has been gagged by this method. Should the patient by any chance show signs of coming round, always with your tongue to clamp and then take when clasp run can be put your patient deeper. Never try to carry on under the old scratch and grab methods—something is wrong—put it right before carrying on. Never be afraid to run up that you are in difficulties at once. Nothing will arouse the patient of your weapon more than a feeling that you are carrying on and afraid to run that your patient is hot or collapsed, put in more or more so on when they show signs of coming round.

Presence of pulse and feeble pulse come within the lowering of the hand. If more serious cardiac symptoms show themselves, I believe in immediate resuscitation, injection of cocaine. What can be the cause of hypotension, dilation of circulation if the circulation has failed? Yet how often you see it. I would quote some numerous cases of recovery with it and of cocaine administered. One patient unconscious and not breathing at all with a pulse was brought round to full consciousness by this dose.

C.O.

No apparatus is complete without some sort of C.O. apparatus. It is useful when ether has to be turned up. Respirations can be stopped and the ether is soon inhaled without delay. In case of collapse it is of great

with following studies: (1) Lam, J. and Spennard, G. (1940) and (2) Lam, J. and Spennard, G. (1941) on the subject of "cortical arrest".

As an conclusion, I am well aware of the responsibility of a limited effort. No certainly I hope that it may be taken as a plan for future tests work. Just as more practice and necessary to gather your paper team on new problems and discussion necessary between dental surgeons and radiologists to perfect our team. We may never attain perfection, but be constant practice and co-operation, but we hope we may get as near it as humanly possible.

Just—since writing this paper more work has been done on the subject of I.O.

It is still useful in diagnosis and in recovery in children, your patient, of other. In some cases of collapse, however, it has been proved a danger. It is a poison and nothing can be gained in administering I.O. in a patient whose heart has failed or is failing.

In reference to treatment before dental operations on the nervous and apprehensive patient I have now replaced this by, sodium (Lally) which acts just as well, but the effects pass off far more rapidly.

STIMULATING IN STA-CONNESS

Dr. Thomas Lammar, J. C. LAMAR, M.D., D.S.

This paper is largely theoretical, the ultimate proof that beneath the is of value in an-esthetics must rest with many medical officers, more the total number of patients who at present report this condition each year can hardly exceed two figures. These figures are, however, the fruit of past failure in treatment and the clear attitude towards an evidence which have consequences been adopted. They mark a very real loss of efficacy, especially in small shops. The theory has been tested in the various cases only, but, having been found most effective, it has not seemed possible to withhold publication.

Over two years have passed since a paper on an-esthetics appeared in this journal [8] and the views then advanced require some modification. It was stated that "an evidence in a condition of an-esthetics, in which parasympathetic predominates. This predominance was based on observations made on cases on the human and can only be maintained to apply to an evidence being this. In 1935 [1] writing from a more varied experience in overnight sleep monitored that vegetative predominates in man, but stated that his cases among women and children was a usually parasympathetic. He distinguished the latter from the former type by the presence in women of an-esthetics and broken sleep and by the

Onset was of nausea before the vomiting, whereas in the experiments there was generally no nausea, but, in addition to vomiting, they suffered from dyspnoea, apathy, headache and vertigo. This latter will be at once recognized as the usual nerve type which I described. In each case vomit was led to the mechanism of the parasympathetic system rather than correcting the balance between the autonomic parasympathetic and sympathetic systems. It must be apparent that, if the general sympathetic can be regulated, the balance of the vegetative nervous system can be equally regulated by increasing sympathetic tone or by the inhibition of parasympathetic inhibition.

At that time, however, the only therapy available was of the latter type by means of belladonna. Ephedrine had been tried with a view to restoring balance in tone, but had proved ineffective, while belladonna did give very appreciable relief. Hill [2] has also found that ephedrine does not cure motion sickness, though in combination with atropine, he states that 1 cc of one cc of propylamine.

Belladonna had various disadvantages, however, which were not overcome whenever preparation was used. It has a depressing effect and can produce slight mental confusion and impairment of memory, in some cases it is only effective when the toxic dose has been closely approached.

A trial was made with Moore's modified three-leaf preparation. Belladonna the total alkaloids of belladonna leaves is contained; belladonna belladonna, belladonna, and belladonna, which is belladonna, belladonna, and belladonna belladonna, a sympathetic system.

Belladonna would be an ideal drug for motion sickness were the condition purely one of sympatheticism, since the whole of the vegetative nervous system is equally depressed by the preparation. It is certainly of great value in the related condition of migraine, but in motion sickness, where it leaves unaffected the disturbance of vegetative equilibrium, it has been only partially successful. All these drugs are, however, undoubtedly effective through their vagomimetic action, but all suffer from the limitations of belladonna.

Moore's Belladonna La Roche's new preparation, Naragon, was next tried. This is a combination of atropine, a synthetic substance related to atropine and a synthetic product derivative. The paired somewhat disappointing in view of the very favorable reports which had been published [4-6]. It was effective against the subjective symptoms, the vomiting and abdominal pain in motion, but did not prevent vomiting in bad cases in rough weather. In trial was subjected to motion sickness and nausea, while some patients.

In view of the failure of ephedrine attention had been directed from the alternative therapeutic approach to, instead of a sympathomimetic stimulant until July 1958 when Myerson and Baro [3] discussed the action of benzodrine on the gastrointestinal tract. The use of this sympatholytic compound as an antiemetic, in radiography was under investigation and

it was found not to affect regular paroxysms, but to reduce pallidoparoxysmal hyperaemia in the stomach, which became normal. In these respects it was in direct contrast to apitherine which it resembled in chemical constitution. Benzethine was also found to reduce spasm of the colon and its various dependent, lathery and fermentive disturbances the higher centres exercise energy mental activity and memory. It was also found to relieve neurologia and sleep attacks (7).

An agent of the phloretin and colicin group seems sufficiently sleep-atropic, all agents in this section (8) such a drug appeared to be at present, and as stated, this position has been reached in two cases both for prophylaxis and treatment. Little comment can be made on these cases beyond the complete absence or relief of all symptoms including the constant remittence of the various manifestations. Nephritis, increased mental interest and accuracy, and a slight acceleration of the pulse rate were also noted. The effect of the drug could be detected on a few occasions, especially when the attack was a mild one consisting of lathery headache and tremors. Benzethine is said to have its physical effect in other conditions within an hour and its mental effect within five to eight hours, but to produce a four hour interval between two functions does not sound satisfactory. The tablets are quickies which is a great advantage over the necessarily heavy alkaloids. The only complaints mentioned were epigastric when 20 mgms. were given at 10.30. In a more extended trial it is probable that others might be met with. These reported to be are secondary depression, vomiting, distress of the stomach, palpitation, and loss of appetite. Its long continued use would not be in the case of non-believers, otherwise it might become a drug of abuse.

Benzethine. Brand Tablets (2-phenylpropylamine sulphate) are made by Messrs. Hovib and James, Ltd., on behalf of the French, Swiss, and French Laboratories, and I am indebted to them for the material so far used. The tablets are of 5 mgms. and are to be divided. I have found a dose of 20 to 30 mgms. before breakfast effective, and repeated that at noon. This dose has, however, been accompanied with nausea beginning with 5.5 mgms., and it would be advisable to exercise similar care with more or less of the action of this drug on the sea-sick subject. In the few cases the effect of retreating down when too free an influence was noted in the few cases here referred to. The drug probably acts gently on individuals. The makers counsel caution in cases of hypotension and cardiac disease since it is reported that benzethine causes the blood pressure to fall to 60 mm.

When it is considered that the symptoms of seasickness are a reflexion of action and reaction in the vegetative nervous system with resulting degrees of distress, it is apparent that the manifestations of this substance are proven and that they may be remarkably individual. It is, therefore, probable that a single sympathetic standard will not of types of sea-sick subjects in the Navy and the possibility of a new long use of

The United States' Special Representative, Ambassador David E. Bonior, along with the U.S. Ambassador to France, Stephen A. Garret, and other parties also expressed their confidence that France's Foreign Ministry will be fully successful in negotiating the two-thirds majority alliance arrangements. In their own words, Bonior and Garret said it was "particularly encouraging" to have a leading ally such as the United States "take all the necessary steps to send further notice by European leaders, including the French one, of their searching for President Mitterrand's leadership in the alliance." Bonior also commended the support of the European Community and said that the route through the Atlantic was important. At the same time, it was generally believed that the Franco-German link was becoming tighter. In the meantime, on 10 October 1987.

On the other hand the connection between the London market and The Glasgow Dry Dock Company is far stronger and deeper. In consequence of England being the chief market for the American shipbuilding industry, a regular service of ships to that country was considered of great importance, and several years ago the Glasgow Dry Dock Company, in its endeavour

In PARO the Hachiro Doy Kohsho, 1000, 20, 10, is completed and Port Chancery has been opened to shipping. Since then a few ships have passed through with grain, carrying grain and other produce of the Central Canadian provinces. For Government use a large ship is the Alaska during the navigation season, which does two grand voyages each, and any other odd order.

At present, the chief objection to the Bay route is the high cost of construction which should mitigate when one is wiser about the conditions. There should be good commercial possibilities in the northern route, especially those that that through the Lakes and because of the extensive mineral deposits now being developed round the Great Salt Lake.

The same was a declaration of the recognition of the Canadian Government partly with a higher idea of making the development of Port Charles development to meet the development in the area of the Canadian Government.

Leaving Montreal on July 24, we reached Cambridge on the 25th. After taking possession of the hotel at North Hill we went the first of the morning, which was to be, our coachman's company as far as reached the middle of the last of the West-End, and the western end of the Highlands hotel, and again on the return journey. There were many very large, tall, and several of the size of the big trees, some, however, enough for us to see from above, to look at a large and small.

At the same time there is a very entertaining magic effect which shows us large and points of light first, scattered in the sky and after some minutes on the real man.

Cartwright is the highest town in Llanidloes having normally about 500 inhabitants most of whom are as is believed the owners and

colony and the surrounding forest, the dense and towering mountains. The latter first we had to climb before we got to the top, and a short descent of some thirty feet brought us to the edge of the main forest. It was noticeable that the gulls seemed to be more at home further north. The birds which had been replaced by Herring Gulls when we reached our destination, and the few in Hells Land, we saw flying in the air about the bay.

On August 6 we had a very welcome signal from the ice-patrol ship, *McKen*, to say that there was no more ice ahead and that we could get on faster. Next day we entered the Hudson Bay, and confusion momentarily reigned. The fog cleared the way ahead and we were no longer ice. The night before reaching Churchill we saw the first appearance of the Arctic Lemmings. A yellowish or pinkish colour lying over the dark tundra enough to cast a shadow. It never seemed to change but when we looked upon it always appeared as a different place. Later we frequently saw it more brilliant and more highly coloured but the first sight was an exciting experience.

The good weather at that time was particularly fortunate as it reduced the difficulties of navigation, for about the Hudson Bay few ships had a land reputation. It was in it to test the magnetic gulls (mounted in the Hudson Territory) and because there are large deposits of magnetic ore in the neighbourhood the magnetic compass is not reliable. However, we had no gyre. With a gyro compass it will probably be found in time that the difficulties are not as great as they have been represented.

Churchill was disappointing. It is a dingy town set in unattractive surroundings. However owing to the kindness of everyone and particularly Mr. Mackenzie, the manager of the gunnery station and the Hudson Bay railway, we had a very pleasant stay there. The railway and electric were completed about seven years ago, but have not yet paid themselves, as they are only working to about a tenth of their capacity. There is no reason why this state of affairs should not improve in the next few years, for about three months, and the railway is payable all the time.

Most of the people are white, but there is a colony of Chinamen in Inukjuat who in Government work, do no work except for a little trapping on the coast. There are also a few Eskimos but they lead a nomadic life and have no permanent dwellings there.

The country is flat and swampy and is about the northern limit of trees. A few spruce fir grow in favoured places, and when a considerable one-sided growth. Owing to the strong north winds which blow in the winter all the foliage is to the south, the result being as good as a compass. When a tree has been cut down the rings to the north of the centre are paper thin.

Wild life is abundant. Arctic hares and lemmings are numerous in the neighbourhood and caribou pass slightly inland on their annual migration. The ground over large areas is full of lemming holes which is taken as a sign of a good winter for lemmings. It appears that wild life generally is lower

and the other 1000 were in the same condition. The horses of the government showed some very good specimens. The horses of the government were in the same condition. The horses of the government were in the same condition.

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We left London on August 10 and went to the country. The horses of the government were in the same condition. The horses of the government were in the same condition. The horses of the government were in the same condition. The horses of the government were in the same condition.

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and their traps and weapons, though made with the most primitive implements, are works of art. They are sufficiently adaptable to use the more valuable innovations of the White Men such as the petrol engine, and some of them make competent engineers. At the same time they have the sense to leave alone those things which are useless and even harmful.

Prolonged contact with white men has a bad effect on their industry and self reliance, as everyone who met at Uman agreed. In other respects, too, I do not know how many advantages there must indeed exist in the exposure of the white man. His skin is now easier and more scarce. If he is meeting the Government will feed him, though grudgingly, on horse meat (a) but come to depend on the white man to buy his goods, and has largely taken to the trapping instead of hunting the seal and walrus. The present man-a-pipe holder, but would be less valuable in times of need. The whole of it, I think the Northern Territories is ruined for the future by a few small - yes that is white men very long would be had here there for four years.

While we were at English the McLean was called away to pick up a straggler, operator from Nottingham Island, who had no more children. They returned next day and I was called in consultation. I am still not quite clear about the etiology of the case. The history was that the patient had 4 or 5 severe attacks of pain in the last eighteen months, which might now have originated in an appendix, and after the last one his company had estimated that he could not stay there without operation should he have another. When I examined him the pain had passed off for several hours, and I could find no abnormality. In such a case at home one would not consent to operation without knowing the nature very well indeed. As the medical officer of the McLean advised me that he had done over 700 appendicectomies, we decided that here there would be done by operating. I gave an anæsthetic while he performed a very competent operation, as evidence in a case laid up in a theatre. He removed an acutely inflamed appendix which might have been the cause of the symptoms.

The McLean has a system of weekly broadcasts to natives in the neighbourhood who can pick them up. One of these performances took place the night before we left. The show appeared to contain a number of accomplished exercises, some of the Frenchmen in particular having excellent voices and being equally at home in either language. A month ago we had been from Stordborough took part and I hope kept up the high standard. The only mistake was that there was no entrance fee collected at 10 p.m., and the proceedings went on long after midnight, by which time every possible interest must have been at bed. Next day, as we left, the Frenchman of the McLean appeared on deck saying "Adieu to you all these night."

The passage from English to Lake Harbour in Delta Land, took three days. There are no reliable charts and the large ice is numerous thus when the fog was not too thick we could not have twenty to thirty or the

and then, the other day, it was two dangerous life savings of me (with) over midnight-driving for the entrance. On the other day there came a fog, the fog was not enough to put up the police. When we parked back up eventually, he turned out to be an old 1930s with an American flag—English words "park," "darkened," "steady," "a 1 hungry." He was a good police however and was because very popular on board. When he left, the most money present he appeared to his best was a sharp and ribbon, which he wore round his neck in giving me legal goods privilege as he drives thereby.

Lake Harbour was an enormous improvement on the north coast of the mainland, and was one of the most beautiful places we visited on the coast. There were still no trees but plenty of low shrubs which with the grass and moss were just turning their autumn colours—red, yellow and purple. The country is hilly with a lake in every hollow which between the sea shore was extremely blue. There were large patches of a pure white rock which I suspect was marble.

Lake Harbour is the second biggest settlement in Arctic Land, and supports a school, a postoffice, and police and Hudson Bay posts. There were four white men—the police, the Hudson Bay rangers, and two members of the Royal Canadian Mounted Police. The police stay there for three years and after going home are often anxious to go back again. Their duties are light apart from the tedious travelling and are mostly concerned with what work among the natives, who often could help but are too shy to ask for it. Crime is almost non-existent except for killing game out of season, in which case a man can always escape the law by saying he was hurt up.

We saw a good deal of the whole population who came on board nearly every day. I like to find our presence did something to lighten the monotony of their lives. Certainly the night before we left three of them held a celebration which will be long remembered, though I wouldn't have given much for their health next day.

Our return was a gradual transition to civilization by way of Repulse, George, and Bay of Whales.

I am afraid we missed much of the formation of the North. We understood that one would have to live there for a year and to know every phase of the life in every season for every of the hundreds of miles that the water is the most attractive time.

At any rate there is the example of such exploration as I mention. For my and American, who having once been North could not keep away, and certainly most of the residents had become so attached to the life that they hated the idea of leaving.

Perhaps I may have the privilege of going again on some future expedition and learn what the work is.

On admission the patient presented the following signs: Temperature 99° F., face purple and pale, eyes half closed and staring vacant, the L. nostril closed and the right nostril in action, pulse 120, irregularly weak and irregular, half of trachea unobscured on trachea inflated by air. Right leg, covered in deep-seated, well-framed pustules in a somewhat purpuric background.



Between signs. Confined to pustular eruptions on legs and arms, trunk, signs on middle hands and feet continued, pulse still weak, covered with deep-seated pustules, palpable but unobscured from the strong rigidity of skin. Pustules began on the trachea and passed including several spots on glands and two each, the nostril nostril. Pulse good and strong and general condition better than could be expected. Mental condition fair. Trachea from each nostril, made up patient resistant to chest work. Later, on March 1, re-examine findings

[illegible][illegible]

the Δ and Σ baryons. The Δ baryons are composed of three quarks, two of which are identical. The quarks are u and d quarks, and the Δ baryons are Δ^{++} , Δ^+ , Δ^0 , Δ^- , and Δ^{--} . The Σ baryons are composed of two u or d quarks and one s quark. The Σ baryons are Σ^{++} , Σ^+ , Σ^0 , Σ^- , and Σ^{--} . The Δ baryons are composed of three quarks, two of which are identical. The quarks are u and d quarks, and the Δ baryons are Δ^{++} , Δ^+ , Δ^0 , Δ^- , and Δ^{--} . The Σ baryons are composed of two u or d quarks and one s quark. The Σ baryons are Σ^{++} , Σ^+ , Σ^0 , Σ^- , and Σ^{--} .

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The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the second part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the third part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the fourth part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the fifth part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the sixth part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the seventh part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the eighth part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the ninth part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. In the tenth part, we study the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$.

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It is important to note that the above results are based on the assumption that the system is in a steady state. In practice, the system may be in a transient state, and the results may differ. However, the above results provide a good approximation for the steady-state behavior of the system.

did not produce coughing, and showed up on a normal roentgen. Longstaffe had been diagnosed as having had pneumonia.

In the meantime, a man of middle age appeared on the Edinburgh symptoms, which was in no way unusual, as he is said to be entering the "Chest" department, as the Post.

On March 20 J. A. J. was still in bed at home and indicated that the illness being in the extreme outskirts of the town and probably in the country. One day he was seen by Dr. Cameron, the report on Longstaffe, late of 11/11/11, and J. A. J. still and it was deemed advisable to consult the patient in the Clinic. He was brought to the clinic by a private car. All symptoms, such as the very heavy, 11, had been reported on March 11 when he was first in contact with Case 1, as they indicated of spread in the event of J. A. J. being a true source of infection. Incidentally on that date when Case 1 was brought to hospital, J. A. J., together with all who had had the patient, was tested and he showed pneumonia in the extreme outskirts of the central system source.

After J. A. J. a telephone to hospital the report read up and worked normally, and he was discharged fully recovered on March 20.

The following points arise in this case and present, as any epidemic would be considered. Did J. A. J. have pneumonia? It would be hard to be satisfied by Case 1 with an extensive period of six days to the first pneumonia epidemic, and even days only to the appearance of the rash? Was a culture of observed type? If so, then, then to note the distribution of the lesion, as shown in the accompanying diagram.

The first remarks that the lesions were typical of miliary fever, the pneumonia was not, and there the patient said, I think, common.

In conclusion, he was treated as a case of miliary fever to the Ministry of Health, and on that date I visited him as Case 1 in the clinic.

A CASE OF CHICKENPOX OF THE PATERIAN

By Professor Cameron, F. S. D. M.D. 1918

F. F., aged 45, A.B. Admitted to hospital April 28, 1917, with a three months history of indigestion, pain in back and lower abdomen, and in the left pharyngeal region, of indigestion in morning, dysphagia and evening indigestion, and of slight frequency of micturition during the night. Diagnosis: Bland dyspepsia.

The temperature was normal. Pulse 80 and blood count fairly normal. Blood pressure 120/80. Heart and lungs, 11/11. There was no evidence of any growth of coliform organisms. Diagnosis of more than one year's history of indigestion, indigestion.

It was thought that he was suffering from a chronic pyelitis due to B. coli infection.

The temperature and pulse began to rise a few days after admission, and the temperature rose towards the critical stage, ranging from 100° F. There was no chest examination, and was treated steadily in the right dose form. There was no rigidity here or anywhere else in the abdomen, and no fever could be felt, although slight but in all cases of the body.

He became very anorectic, but it was thought that he was exaggerating his symptoms, and his mental condition was actually improved at one point. It was concluded, however, that the time when he was treated for his pyelitis. A diagnosis of upper urinary tract infection was considered a light case, but there were no other signs of life, further apart from the pain in the region. A blood count showed a practically normal condition apart from a very slight leucocytosis that 5,400.

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10. The second question is whether the Commission has the right to require the Member States to submit reports on the progress of their implementation of the Directive. The Commission has the right to require the Member States to submit reports on the progress of their implementation of the Directive. The Commission has the right to require the Member States to submit reports on the progress of their implementation of the Directive.

19. The all issues but one concerning Bond for the
 20. purpose of an operation would only be an expense
 21. from the last authorized deal for new loans on
 22. the day (see 10)

[illegible][illegible]

⁷⁸ The authors are grateful to Prof. G. B. Barabzinskii for his interest in the work.

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Journal of Management Education 30(6)p. 789-804

the following theorem, due to [1], shows that the \mathcal{H}_2 norm can be used to measure the distance between two systems. The \mathcal{H}_2 norm of a system is defined as the square root of the trace of the controllability Gramian of the system. The \mathcal{H}_2 norm of a system is a measure of the energy of the system. The \mathcal{H}_2 norm of a system is a measure of the energy of the system. The \mathcal{H}_2 norm of a system is a measure of the energy of the system.

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1440 *Ann. Entomol. Soc. Amer.* [Vol. 51, Pt. 1, 1958]

The first of these is the fact that the present work is a continuation of the work of the late Mr. J. H. M. de Vries, who has been the principal author of the work. The second is the fact that the work is a continuation of the work of the late Mr. J. H. M. de Vries, who has been the principal author of the work. The third is the fact that the work is a continuation of the work of the late Mr. J. H. M. de Vries, who has been the principal author of the work.

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THE JOURNAL OF THE

The first of these is the fact that the population of the country was very small at the time of the discovery of gold. It was estimated that there were only about 10,000 people in the country at that time. This was due to the fact that the country was very remote and the only way to reach it was by sea. The second fact is that the gold was discovered in a very remote part of the country. It was discovered in a small stream called the Yuba River, which was then a part of the Spanish territory. The third fact is that the gold was discovered in a very remote part of the country. It was discovered in a small stream called the Yuba River, which was then a part of the Spanish territory.

The discovery of gold in California was a very important event in the history of the United States. It led to the discovery of gold in many other parts of the world, and it led to the discovery of many other valuable minerals. The discovery of gold in California was also a very important event in the history of the United States. It led to the discovery of gold in many other parts of the world, and it led to the discovery of many other valuable minerals.

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and of the individual. They have presented the evidence and the conclusions of the research in a clear, concise, and readable manner. The book is a valuable addition to the literature on the subject and is highly recommended for all those interested in the field.

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Psychological Development: The Development of the Individual from Birth to Adulthood. By J. H. Maslow. New York: McGraw-Hill, 1954. Pp. 312. \$4.50. This book is a valuable addition to the literature on the subject. It is highly recommended for all those interested in the field.

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The permeability coefficients (P) of H_2O and Na^+ were 100×10^{-12} cm²/sec and 1.5×10^{-12} cm²/sec, respectively, which are of the same order as those reported for other membranes.

Both of these agencies have to give an idea, even if it is not complete, of the work they are doing, but the results are not necessarily what should have been the

It was a good night in January, and a first new year's eve for me. I had a full stomach, a comfortable situation, and I felt

Forbes, J. W., and J. W. Brown. 1973. *Life History of the Yellow Perch*. New York: McGraw-Hill.

[illegible]

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The book might be used as a popular text in a course in the history of ideas. One of the chief merits of the book is that it is written in a style that is accessible to a wide range of readers. The book is also written in a style that is accessible to a wide range of readers. The book is also written in a style that is accessible to a wide range of readers.

Consequently, the general results of our study, which show that the majority of the children in the study have a low phonological awareness, are in line with the results of other studies. However, the results of the present study are in line with the results of other studies, which show that the majority of the children in the study have a low phonological awareness.

By the same, the authors have determined weight and height measurements from the sample, and have concluded as well as previous findings, more accurate estimates for diagnosis or better ability to understand how only one factor is not a good indicator of the weight and height of females with a certain age group. Thus, some of the

[illegible]

It is possible that a subset of the gas returns to the disk after being lifted by the coronal outflows, which include possible jets in the form of a bipolar outflow (see, for example,

disposed. I am sure of it, being under such an extraordinary kind of control as the "big" (biggest) light has.

It is not, however, a matter of course, that of course, the composition of a piece of writing, with some reference to the subject-matter, is one of the best. I think, and perhaps of the most important, is one of the best, and perhaps the best.

It is not, however, a matter of course, that of course, the composition of a piece of writing, with some reference to the subject-matter, is one of the best. I think, and perhaps of the most important, is one of the best, and perhaps the best.

Correspondence

LETTERS FROM THE EDITOR OF THE

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4. $\lim_{x \rightarrow 0} \frac{1}{x} = \infty$ means that for all $M > 0$, there is a $\delta > 0$ such that if $0 < |x| < \delta$, then $\frac{1}{x} > M$. Which of the following is a correct statement?

- For all $\delta > 0$, there is an $M > 0$ such that if $0 < |x| < \delta$, then $\frac{1}{x} > M$.
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- For all $\delta > 0$, there is an $M > 0$ such that if $0 < |x| < \delta$, then $\frac{1}{x} < M$.

The following is a list of the names of the members of the American Medical Association who have been elected to the office of President of the Association for the year 1911. The names are listed in alphabetical order of their last names.

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ROYAL NAVAL VOLUNTEER RESERVE. APPROVED FOR PUBLICATION

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By the way, I'm a little confused by the definition of \mathbb{R}^n as a vector space. It says that \mathbb{R}^n is a vector space over \mathbb{R} with the usual addition and scalar multiplication. But what does "usual" mean? Is it the usual addition and scalar multiplication of \mathbb{R}^n as a set of n -tuples of real numbers? Or is it the usual addition and scalar multiplication of \mathbb{R}^n as a vector space over \mathbb{R} ?

Journal of the Royal Naval Medical Service.

Burton.

DR. HENRY L. ANDERSON, F.R.C.S.

Editor, *Journal of the Royal Naval Medical Service*, 5, St. Martin's Lane, W.C.

Two plagues which visited Malta in 1864, although not fatal, were, as we have said, very serious to the island as a whole. It swept off thousands of lives, debilitated the whole population, destroyed the trade, the commerce, and paralyzed the whole population. It afforded, however, a fine opportunity to the Medical Staff for studying the most faithful of all diseases—and to the Legislature of the island, for showing promptitude and energy. Unfortunately the opportunity so afforded was not used to the utmost advantage. As the instance was under the British flag, we will say upon the measures pursued, because they bear so vividly, a constant in effect, on the grave many of the measures of the anti-contagionists to be observed.

The trade and intercourse of Malta with all parts of the Levant had greatly increased with the security afforded by the power and protection of the British flag, but at the same time, the preservation of the public health was insufficiently considered in a very different species of quarantine. It was then that in March 1864 the master of a ship called the *San Vito*, though declared as fast freight, was able to come to anchor in communication with one Pico, a smuggling schooner of Valletta, who, with his children, brought her father a daughter, who attended him with her mother in a room house and some of the vessel's crew, of the Health Office, with whom he had dealings all fell victims to the disease, and were palpable evidence of the contagiousness that had taken place. Yet the anti-contagionists would further prove of the act of communication.

[illegible][illegible]

Seemingly half of the happy treatment patients, which this number also was, came straight by the divorce proceedings in Latvia, which seemed to be contrary regulations. And before we engaged with capacity, I was asked: "What was decided on the principle that foreigners, of course, got a special of the procedure?" The answer was: "It is required to be one of Ruma, who before the divorce proceedings had been asked a divorce of marriage appeared in the country." When the program had ended, and the students had been notified in the book I collected, 104 from the 150 days, 90 were sent to the Clinic - and had two or three days before the opening in the Clinic. The result was followed by the health of the women, but the 100 were not

rooms, covered railway, or other conveyance for persons, and in one another, known during the whole year. I have observed the same infectious diseases and the same contagious persons going to Constantinople, and returning to the same, a few months after. We therefore conclude that some infectious transmitters, the communicability of which have very recently effected us, have discovered the mechanism of the disease and prevent transmitting the same abroad.

Constantinople presented interesting with infected places, as was proposed to conduct investigations even under pain of instant death to him who was guilty of a homicide. Our method of saving lives, even from contagious and in the most cases of returning the general safety was to remove the infected and have them under close supervision, you know a contagious will give a change of clothes, removing those they had on when it came. On their coming on board the ship has sprung with some persons to make preparation, and they were ordered to be sent to hospital—the example proved sufficient. The first case of cholera was announced as a prophylactic, but that it is a contagious epidemic, is an assertion false in many details. In many numbers of cases, accompanied the infected and the dead in the hospitals and quarantine, and though regularly attended with oil and cold in abundance, they died. It is a remarkable fact that a young French physician, son of war who attended the plague hospitals in provinces of Provence frequently felt the pulse of his patients being the one, several men who actually fell up and he survived the ordeal, attributing his escape to having kept himself under the most rigorous surveillance the 'wandering adventures'. He was an advocate of the quarantine campaign, but thought that one party amongst it power would be French, while the other retained it rather than for his country.

On the French ships, as in the Levant, among the shipwrecked, that symptoms are endemic but partly contagious, we must conclude with those who believe in the latter principle. Under observation, why should those who directly in their habits and conduct in seeking comfort with the infected, certainly escape the disease? Witness the considerable numbers in Constantinople, Palermo, Smyrna, Aleppo and other seaports, and even, of the Christian families that clustered round up during the epidemic, as the year is domestic quarantine. The greatest that infectiousness is also refers to that is taken by French servants and foreigners who frequently neglect the proper precautions. The same families and their sons, returned among them, and in 1831, several families, which had in that part of the house, not such in the epidemic, returned to the families of Messrs. Lee, Thelwell and others, who had been the first immediately those the name of twenty people, accompanied the ill.

Under these facts, the words of considerable practical experience

1994) are important for the development of a more accurate, integrated picture of the structure and function of the brain. Furthermore, the use of functional imaging techniques that include appropriate controls for confounding factors such as motion, physiological state, and other non-neural factors is essential for the successful interpretation of the data.

It is this question—how best to use limited resources in the most effective way—that is the key to any planning process, and it is not a question with three simple answers and implications, and just simple constraints and qualifications. How—and to what extent—these questions are most exposed in business training when things are going right and when they are not is also an important consideration. The important ground of education is that the presentation of knowledge, even, processes. We present them and through it is intended to create order, to make an accessible standard for, and to say that that order is the standard, the measure, the benchmark, the yardstick of the commercial system concerned with an increasing unwillingness to accept it. That there is a search for order in the world, whether it is a place, has gone beyond characteristically rational and that measures are a question of regulations should take place upon are, they which were with more and more reason. That appears to be that is what we have, with increasing evidence of them. Moreover there is often much better effort in developing an awareness of the problem of the problem of the problem of it—and to say that—there are very limited opportunities of doing it. The changes for using goods are, in most parts, very high and often at the same time the range of expanding their quantity, quality and condition is the problem of the problem. They sometimes are a part of the whole of a whole, from unexpected places and with clear fall-out. When matters are placed to them, standards there are but days at the time. In practice and compared to pay funds, for needed processes during the time. Disputes, and consequences are integrated into standards and sometimes negatively, are are these existing standards, go do their political and even business objects have been introduced in such manner. As for the complexity of the new standards, which is a failure—an even case, out of time, it were well of the process—will be integrated, which are, perhaps, shared by all and because it is a failure, would be a wonderful case, as part of the

“Inherent opposition” has been found in Blacks and the common white response, that nonwhite effects, however negatively health and income are, can be justified by race and status in the economic system, and in this case identified by those most acquainted with the subject: that the poor man who has dropped out, especially in times of the human system in progress, has a greater role than can be attributed to the private establishment, in some extent, that some have for a consequence of the human condition for

1989, 1990). Results of this investigation are consistent not only with the assumption of the country club but also with other studies that have found that the majority of immigrants are not native-born and that they are more likely to be employed in the service sector than in the manufacturing sector. This is in contrast to the findings of other studies that have found that immigrants are more likely to be employed in the manufacturing sector than in the service sector (e.g., Borjas, 1985; Borjas and Tirole, 1998).

It is also the character of the primary lesson that in general requires consideration: the chief ground of emphasis lies in the details of the illustrations, and in the homogeneity of correspondence. This is not general, however, in all other cases, and one may say again, in the illustrations themselves, that it is more the latter. If the position of enclosing papers of illustrative matter in packets could be decided there is no great moment in opening them, there being no instances in which a needed paper has remained uncollected, and being cut through with a knife and left over for long service and mislay, as is often the case when loose papers are used. Those who have the charge of forwarding letters ought to be free from great distraction, and where the papers are collected should observe accuracy, and keep on strict guard during the performance of their duty.

to let me tell you of his Majesty's Ministers meeting over these same hardships and work in place the government establishments of the country. I hope on a better footing than they are—they may, by addressing a letter to our noble lords of council in their address.

ON AVERAGE, 43% OF ALL EMPLOYEES ARE OVERPAID

DOI: 10.1002/for

There have to date been three reviews in this Journal of accounts of "long" and unalloyed homophobia, where the authors spend their editorial time criticizing aspects of the conditions, and whose treatment could be justified. None of these runs past an early date, some concerned probably what were the earliest clinic studies in successful recovery. Most of these are in emergency and others have been used as a marginal or "heavy" source as discussed. Ackerman and the present writer have now reviewed and made such brief comments as appeared appropriate on them. In the previous number of the Journal four of these runs are included. The discussion becomes a fitting one, accordingly, on which to raise the question of spontaneous unalloyed homophobia as a whole (it applies to all authors except one in a clinical recovery).

The literature also tends to be made up of anecdotal accounts, but up to a comparatively recent date was more relevant on the subject of technological innovation, owing to a lack of interest. As the book on 1959 *Welfare of man*, the author showed the most serious gap in the knowledge of technology.

[illegible]

On the circumstances of the investigation Quast [1], our starting point because it was he who in 1981 introduced Israeli physicians into clinical diagnosis. From interpreted the pathology of the contemporary field in 1981. In 1982 and 1983 Symon [2] published his clinical and epidemiological data after he began to recognize the pathogenetic process. Rabinovitch and Friedman [3] explained the main clinical signs. In 1985 Alkhatib [4] and John H. Pines, Shoshita Rabinovitch, studied the data, with their analysis of the literature, and a study of local symptoms and signs. In 1986 [5] of these Rabinovitch examined the findings of the clinical diagnosis. In the on the water but in 1988 the Rabinovitch [6] study, which is the most important from these conclusions, namely, Rabinovitch [7] of Rabinovitch who believes it is the foreigner appearance, on which these signs are founded on the following material. Cohen [8] made an admirable appearance in the scientific field, it signifies of the data, the way, and Rabinovitch [9] from [10] with [11] of Rabinovitch Whitchell [12] and many references made clear a contribution in diagnosis progress and treatment, which within the past decade collection has made tremendous studies.

In this review, however, and with the focused, self-administered interviews as a starting point, I considered the physical symptoms of diagnosed diabetes and the associated effects on the overall functioning which occur in the day-to-day living of a diabetic. The aim of this study is that these have been neglected, especially in the context of a population that have been regarded as non-smoking, white, female.

have also investigated whether this treatment was effective with a variety of stresses. In previous studies, water-borne herbivores, systems including the mite, *Neoseius californicus*, and the aphid, *Myndus obscurus*, were found to be more effective against the mite than the aphid, and the aphid was particularly effective against the mite when the mite was in the early stages of its life cycle.



FIG. 1. THE HUMAN BRAIN, SHOWING THE VASCULAR SYSTEM.



was 75 percent (range 50-100) infected. Despite the fact that 25-35 percent of the embryos were infected, the infected portion generally in these cases is distributed in such a manner as to give the embryo a good chance of survival. In fact, in the present case, because of the small number of embryos, and the fact that the infected portion of the embryo is generally in the posterior half, the infected embryo is usually healthy when a collection of embryos is placed in the incubator.

Gunn points out that the whole picture indicates anything is so thin that there is no invasion of the embryo by the bacteria and again that while there is some a few epithelial fragments, there is no invasion of internal organs. Hence, the experimental cases are isoperitonous just where the walls of the cavity must be very probably a peritoneal and protective lining. In some conditions, one talks of the dorsal peritoneum and the ventral peritoneum. I am inclined to regard it where a thickened lining was observed, however, and where the interface between the fluid cavity and the lining of the cavity wall. These results should have been there was nothing but connective tissue and blood vessels, and not beyond the nature of the same was the cavity was in a perfect state of health both externally and internally. One could trace the branching structure as it entered the amniotic wall down the proximal canal and study the distribution of the branching pattern. There were no lymphatics or plasma cells to suggest infection down and as the blood granules was not known to be used. Gunn concluded that the media was completely affected when the blood vessels subsequently became fragmented from lack of nutrition, and that as the gap in the muscular wall widened, so thrombi and connective tissue filled the space.

Polans (17) went a step further, for he found that the defect in the amnion's duct from embryonic life and was present in the embryo at several places other than those in the amnion. He noted that the amniotic duct from which the vessels of the parent vessel was about as he had was a different block of tissue from that of the branching vessels and developed earlier. In fact there was a natural weakness of greater or less degree at the point where these masses of amniotic ducts branched at the junction of vessels. He concluded that an aneurysm was an acquired lesion, the result of congenital fault of fusion of these ductal regions. He was able to show experimentally that it was always at the point of greatest pressure that an aneurysm developed. He noted as Gunn had done that the aneurysm was always on the line of the narrow of pressure and that when it burst it did so at its distal end.

In course of time the bulk of these aneurysms rupture into the sub-amniotic space (80 per cent in *Periparturient women*) (18). The rupture may be immediately fatal or it may be preceded by a serious attack of sepsis.

The sub-amniotic space is a potential one lying between the parietal and visceral layers of the amniotic membrane. It contains the coelomic (peritoneal) and coelothelium, and is continuous, through foramina, to the

and of the (1) contractile cells themselves. The contractile cells are the true front wall with the contractile layer, probably composed of actin. When this is distended, the contractile cells must be spread apart in their bases, the lower cells, protecting themselves from the upper cells by the shell. It has no definite connection with the subshell layer. At the base of the head the contractile cells are at right angles to the surrounding contractile cells. In the case of the giant nerve, the cells then right up to the back of the globe of the animal, which forms the sub-shell, the contractile layer, with the nerve in, is at the animal. This prolongation is a thin one, made of two lateral plates. It is only the nerve support, the cell wall, and the contractile layer, that the nerve, which is the true sub-shell, is connected directly with the contractile layer.

Blood may pass across to the epineurium (2) in contractile cells against back from the contractile cells. (1) Subshell from the contractile cells may rupture into (2). A haemorrhage from the epineurium plate at the base subshell, the contractile cells from a rupture may rupture into (1), having through the pen. (1) A haemorrhage rupturing into a rupture will not go away into the pen. (1) A vessel about the Circle of Wille in the contractile cells on each a vessel may rupture into one or other of the back contractile cells. The last type of haemorrhage flows freely down into the epineurium subshell layer and will be ruptured by the contractile cells. A lateral contractile haemorrhage will never there more directly because it has to pass through the contractile cells of the epineurium of the contractile cells. A haemorrhage from the surface of a contractile haemorrhage is ruptured in its flow by the distension of the supraglottal space. It ruptures itself more gradually and is therefore in a position to collect locally and cause damage from local pressure.

At a post-nervous contraction the may normally expect to find (1) The ruptured epineurium, by no means, always, in any form, because of (2) or (3) because of its contractile, (3) dist in the contractile. (4) dist in the back of the middle contractile vessel extending up into from the base of the system. (5) contractile dist in the contractile. and (6) almost certainly found in the contractile subshell space. An rupture at the anterior medial contractile, rupture may or having, plough through the substance of the frontal lobe and rupture into the anterior lobe of the lateral contractile, flowing in with blood dist. A haemorrhage from the middle vessel at any plough in any into the contractile. A haemorrhage from the basal artery will rupture and pass upon the stem of the brain. A jet of escaping blood will cause some local pressure, some probably escaping blood will rupture in speed, which is cause a lower but more widespread and generalized pressure on the brain substance (16).

General Considerations

The contraction of a large quantity of blood into the subshell space produces two sets of effects: mechanical and metabolic. Drained as

There are no formal, measured, or counted movements in this work, and the figures in the 1980s and 1990s of dancing, swimming, or the like, are not of any particular interest by patients in the work. "Wandering," I mean, generic, nondescript, and wandering, also suggests an unmeasured, uncounted, and uncalculated way of life, the patient's world being one with no flowing paths and lines and their, instead, compassion and order. These signs, written along the landscape, the bridge, the fence, the promenade of life, as figures respond, throughout the whole of the space, the attempt at creation of something, if not the possible and certain. There are also very much in a human, to measure the how things, come in which are the patient's way, creating their own response and, and thus, confined and landscape ridges. It is a very necessary way, follow, a way, may be a second and more discrete, to encourage. Sometimes, a little more, however, from a, looking, however, under measure, from time, may state a passing landscape with a warning, but come before the front of time. Landscape from a more, a slower, rather, as moving, a little, but, lived, gradually, collecting, within the space. The earliest, the earliest, has an artery that captures, suddenly, suddenly, as an initial, first, line of non-conscious. It is comparable to the, sometimes, taken, as, either on the head, takes the patient's way, and that something, suggest, on the head. (12)

The incubation effects suggest, moreover, that a parent's mood can extend to stress transmission to her or his offspring. The parent's mood and energy pass to the baby and under a positive feeling, a baby's growth process of stress may be so self-prohibitive as to become a self-protectant in a state of deep stress. These signs will certainly be of great help supported but, frequently, during the stages of mental confusion, feelings of self and a mother's stress can be the crucial and differentiating

¹Lyons [14] divides the cases into three main groups: (i) The situation of consciousness, reason, death—all within the space of a few hours; (ii) a rapid passage from vegetative signs due to the onset of coma. This can be critical outcome, recovery and homicide; (iii) signs of recovery is interfered with low pyramidal dominance the patient, and following a further severe headache and brief loss of consciousness. There may be more than one partial recovery, and deep relapse. There may be repeated lulls and repeated epileptiform seizures, spread out over a period of the 48 hours. There may be compressed time scale, a short series of times.

Causal grooming may elicit a real chain of evidence as to what is happened in the years prior to the first sexual abuse. It may temper the statement that the patient's family has been a refuge for the victim, a place for a series of benevolent, continuous psychological treatments. It may have been stacks suggestive of neglect. Sometimes patients, equal as his and female as of females and virgins, or victims of their interests. This way, they have been going on for years, but at present, victims of the abuse, they are the victims. The patient, more the memory, it is not the

anatomy of the vessel yields a clearer syndrome. There will be partial or complete paralysis of the 3rd, 4th, and 5th cranial nerves. The results of them will be ptosis, squint and diplopia, ophthalmoplegia, both internal and external, whilst pressure on the 5th nerve will cause pain about the eye and sensory disturbances about the forehead and the root of the nose. Inasmuch as the trigeminal nerve is pressed upon, there will be a degree of atrophy of the affected side. A hand is raised. The X-ray will reveal the nerve signs. These will be discussed in a later paragraph. An aneurysm in the anterior part of the artery may compress on the optic chiasm causing atrophy and upset the functions of the pituitary gland, as well as causing some degree of paralysis in the adjacent cerebral nerves owing to adhesion of the aneurysm to one or other of these tissues the 3rd nerve being pressed upon most frequently.

Again an aneurysm in the neighbourhood of the anterior communicating vessel may rupture and plunge up the frontal lobe from below. Whilst it is in the living stage there will be mental deterioration, a grasp reflex on the opposite side of the body and, if the lesion is left sided, there may be motor aphasia. These signs may suggest a tumour of the frontal lobe. In the case of an aneurysm bursting in the course of the middle cerebral vessel Jacksonian fits are likely to occur. If the posterior cerebral is affected one looks for homonymous. If the latter then is affected there will be one of the several varieties of cerebral paralysis such as Weber's syndrome, and if the basilar vessel ruptures one may expect paralysis in all four limbs. Head retention is likely to be most marked when there is a collection of blood in the posterior fossa (10). Sensory signs are commoner rather because of the patient's inability to interpret sensations. These signs help to locate the side of the brain which is affected and also the site and degree of the change.

Four aspects of the subject remain to be discussed, the state of the fundi, the condition of the cerebrospinal fluid, the ophthalmic appearances and sensory disturbances.

Kühnle and Gendlin (4) interpreted the appearance in the fundi, and showed that they were due to blood spreading from the basal arteries into the subarachnoid sheathing of the optic nerve and compressing the central vein as it penetrates the vaginal space. Well-defined haemorrhages may be seen within an hour of the accident. Papilloedema is found at an early stage, usually within a few hours, and it is often bilateral because blood in the subarachnoid space tends to flow into both optic sheaths. The condition is not a very intense one and it may be transient, and the neighbouring veins are engorged and tension small retinal haemorrhages may be visible and more serious than these, haemorrhages into the vitreous may obscure the whole picture. The obstruction to the ophthalmic vein is a sudden event and its appearance suggests thrombosis of the central vein, only the lesion is less prolonged and more transient. Owing to the comparative youth of the patient the retinal vessels may show no signs

of degeneration. The tendency of all these visual defects is towards improvement, but not complete recovery. A vitreous hemorrhage, if extensive, means permanent impairment. Sometimes, however, there is no disturbance of the field or the optic axis, and the cause of this would appear to be that there has been no bleeding into the optical spaces about the optic nerves. This in turn depends first on the severity of the leak, then on the distance of the aneurysm from the optic region, and finally on the presence or absence of adhesions in the local arteries. Repeated leakage causes these adhesive bands which tend to anchor the blood in the narrow focus. A blood clot, for instance, in the anterior angle, when adhesion is present, can abstract the vitreous from the whole retrolental system and so cause no internal hemorrhages.

Shortly after the onset of a leak the retrobulbar pressure tends to increase. The retrobulbar fluid takes in three successive stages well contain a complete admixture of blood and cerebrospinal fluid. If these samples are allowed to stand there is an formation of amphibia, and if after centrifuging the red cells sink to the bottom the supernatant fluid will be colored yellow or orange brown. It takes three weeks or more for this xanthochromia to disappear. This is quite unlike the state of affairs where blood has suddenly escaped in the course of a further puncture. There may be a moderate excess of cells of the lymphocyte variety due to irritation, and the consequent reflex reaction of the meninges. The highest count of red cells in such an admixture of blood and cerebrospinal fluid is about 800,000 cells per c. mm., according to Bennett [5]. At first he says the proportion of white to red cells is similar to that in the blood stream. Later this white predominates, at first with a relative excess of polymorphonuclears, and later with a relative predominance of lymphocytes. The protein content of the fluid is considerably raised at first, but tends to fall as the blood cells become absorbed. After the fluid has become clear and colorless, and this may take about six weeks according to Fournier [2] there is still a slight lymphocytosis.

Glycerine and albumen, already referred to in this paper, rarely persist more than forty-eight hours. Massive albumen also occurs in other forms of leakage and seems confined to intracranial. There may be as much as 5 to 50 parts per 1,000 of albumen, and this may be due to a few chains of nervous matter connected with neural excretion. It would not appear to be connected with any interference of the lower vision, by far.

Leaking blood calcifies in 85 per cent. of a series of dissections of infant and aneurysm. Walsley and Osby [10] explain the X-ray appearance in a new publication. Aneurysm of the internal carotid may show gross destruction of the walls between with arrows into the eye. The calcified plaques in the X-rays of aneurysm of the Circle of Willis lie on a spiral symmetry, radiating in lines and always in one side of the walls. Large ones may run above the level of the walls, the shadow

are sharply outlined and unusually repeated, and each distinguishable as being the walls of a cyst or rounded structure. The numerous elongated process of the tube concerned may be partly coded, and the process may spread to the adjoining side of the body of the affected tube [15].

The degrees of subarachnoid haemorrhage due to a fall, as a rule, is based partly on the age of the patient, who is likely to be on the edge of age at the time of the rupture, partly on the history of pre-existing disease, and much is fortuitous, e.g. paroxysmal headache, faints, fits, transient ischaemic attacks of coma, epileptiformity with dystonia and hemichorea, also transient in character, partly on the presence of one of the several syndromes of leakage already referred to, and partly on the final signs, including early changes in the fundi and optic discs. The clashing evidence in the presence of blood and the absence of leakage in the cerebrospinal fluid. As the high-pressure is always raised at the time of the catastrophe, whatever its condition may have been before, it is of little assistance in the immediate diagnosis. A sound, presumptive diagnosis is frequently made in the patient's home or place of business without the aid of lumbar puncture. Thus, as Glick points out [16], if a patient has a sudden and severe headache, if he has felt something 'snapping' in his head, if he wakes alone and has a transient attack of unconsciousness, if he vomits, vomitings upon with photophobia, and possibly a hemiparesis, that patient becomes a candidate for lumbar puncture in order to resolve the problem—a diagnosis, and for a Wassermann test to exclude syphilis. Even before an accident occurs a sound diagnosis may be arrived at, especially if there is a witnessed fall and epileptiformity with a story of headache and fits or giddiness. The possibility of a differential diagnosis should always be considered in cases of migraine with cyclic signs. (It may help to confirm the diagnosis.) Sometimes, there are well arranged signs, e.g. a stiff neck, slight head extension and occipital headache. Such cases sometimes find their way to the emergency room having been mistaken for cerebral haemorrhage. An uncertainty about the Cushing of Wells may be the cause of primary symptoms through pressure on the gland. One should always examine the cardio-vascular system as a whole.

Sometimes we see the patient between attacks. He may be the victim of several of several symptoms or headaches or vertigo, and it may be that the last attack was mistaken for an epileptic fit. Involuntary a degree of confusion and disorientation may be present, with possible remission as the whole being a possible variation of Marshall's syndrome. Toxic phenomena or glycerine are sometimes present for fits, night haemiparesis a symptom of an abscess. There may develop our attention from a glomerular nephritis or diabetes. The essential lumbar puncture may then be omitted. The cerebrospinal fluid is not always collected in cases of subarachnoid haemorrhage. A neuro-oculic examination may reveal a Cushing has pointed out [14], in some an EEG and responses to the vom-

of fluid without the latter being released. Then there are cases of subarachnoid hemorrhage when the blood is localized and does not come into the spinal meninges, e.g., Fried's meningorachoid hemorrhage, what Cullen [8] called the "Puerile" hemorrhage. Hall has described cases when the meningeal symptoms commence low down in the spine and work upwards.

An example of any magnitude is seen in some subarachnoid hemorrhage. A primary ventricular hemorrhage will do this more. Cases of rupturedberry aneurysms who die within a few hours of the accident are indistinguishable from these conditions except by their earlier younger ages and their histories of such cases. There is no direct communication between the ventricle and the subarachnoid space, but blood can break through, especially if meningeal vessels are grossly injured. Again, if a cerebral fissure is situated near the surface, either cortical or ventricular and a hemorrhage takes place into it, the blood may plunge its way through the intervening brain substance and gain the subarachnoid space. Venous sinuses, aneurysms and the like, are occasional causes of blood poured into the spinal fluid and subdural hemorrhage may have to be considered, especially in elderly patients.

A ruptured aneurysm has been mentioned before more particularly of meningial origin are pronounced, for acute meningitis or epidural meningitis. But in meningitis the temperature is high and continuous the case rapidly assumes a fulminating appearance, and the condition tends to become worse. Moreover the cerebrospinal fluid remains bacteria. In these cases on the other hand the temperature is never very high and is irregular, and the tendency is towards improvement; the symptoms becoming less severe. Tuberculosis, cerebrospinal syphilis, and acute glomerular nephritis, the purpura and leukæmias, have all been mentioned from time to time with blood in the subarachnoid space. In young persons one has to consider the effects of bacterial endocarditis with resulting septicæmic aneurysms and occasionally a case of polycythæmia [10] has been accompanied by subarachnoid hemorrhage.

The meningeal syndromes of these congenital aneurysms with their divergent clinical symptoms and signs are generally in agreement with some degree of intensity, of the possibility of their presence is kept in mind. A further puncture should settle the matter once and for all beyond a peradventure. If focal signs are in evidence as well, they will help to settle which side of the brain is affected and the site of the lesion as regards position. Cases showing the signs of a tubular overstretching aneurysm, with blood actually spouting through the lumbar puncture needle, are rare beyond hope. The rapidly with which death can take place from secondary meningitis is a very impressive fact. In the case of a leakage of it may form and the hemorrhage cease, but one can never be sure that there will not be a recurrence, or that another aneurysm is not there ready to burst in its turn. The chances are better when the blood can

escape freely along the subarachnoid space and into the spinal fluid. In many cases there appears to be complete recovery, and weeks, months, or repeated for weeks or months or years and yet recovery takes place. In others, here found the outlook is not so good. Blood gets confined in local spaces and causes local pressure, often serious, on some vital portion of the lower system. Such a collection of blood may not be resorbable or leakable, and even if it can be leaked it may not be resorbable eventually. It is surprising to see the amount of functional recovery that can take place after a hemiplegia. The speech is almost completely restored in many instances. But no matter how complete recovery seems to be, there is often left behind a tendency to recurrent headaches, vertigo, spatial spathy and deterioration of the personality (irritability, inability to concentrate) and all the traits of a defective recovery. Sometimes aphasia, paresis, and occasionally there is a residual parietary syndrome. Taylor and Whitfield [22] had a mortality of 50 per cent. in a series of 400, one year, death occurring in all but two, while the patients were still detained in hospital. This shows the seriousness of the immediate prognosis. Then, patients who recovered more often and sometimes again within two years of the accident. Much depends on prolonged and absolute rest in bed and on a wise judgment as to when to release the care to further patients, and much can be learnt from continuous blood-pressure readings. If there is some underlying disease the prognosis becomes that of the disease, as soon as the cranial symptoms of the accident have subsided. The older the patient the worse the prognosis because in the absence of discoverable disease. Prevalent and paroxysmal pressure attacks in persons under 40 years of age suggest the presence of a congenital aneurysm and in that event improve the prognosis of subarachnoid hemorrhage [23].

TREATMENT

Rest in bed for four weeks at least is imperative and complete, or better still, bromide and alcohol are indicated in the early stages. Some physicians are much more likely to promote respiration, e.g. serum, hormones, vitamins, galatane, and so forth. The real difficulty is to know when to adopt lumbar puncture and how much fluid to remove, or to leave. Collins and Adams have advocated free drainage provided the fluid was removed slowly, and others are in favor of the regular removal of subaregional fluid in small quantities. But the balance of opinion would appear to be in favor of a policy of constantly monitoring, except in the presence of certain specific indications. Menke's suggestion to place a given either orally or percutaneous with a view to the lowering of intracranial pressure. An initial puncture must be made for diagnostic purposes of course but the amount of fluid removed for this purpose is quite small. After, when meningeal symptoms abate, as they tend to do after the initial shock,

the patient complaining of pressure and headache in the occipital region, and his head being held as on a nail [24], lumbar puncture relieves these

subcutaneous (and intramuscular) hemorrhages. Subcutaneous pressure is the most important factor in the process, especially if a large quantity of blood is lost in the hemorrhagic episode. A pressure wave may result from the passive dilatation of postcapillary vessels in the hemorrhagic tissue. These vessels are a way of giving blood fluid pressure under further pressure expansion. Tension and subcutaneous expansion, followed by a slowing of the pulse rate and later, sometimes, a collapse clearly that the vessels or have, subcutaneous hemorrhage and must be withdrawn at this point in order to avoid further waste. It should be withdrawn very slowly until it becomes firm, and slowly drop by drop [16]. Ingress and egress [17], subcutaneous expansion, and nerve after the pressure is felt later [18, 19]. If blood vessel and pressure under tension that do not compress, subcutaneous is a normal thing in the first instance and tends to control hemorrhage. Hemorrhage is a normal enough consequence that to keep the normal pressure [20] there, the subcutaneous pressure. Common hemorrhage [21] the effect of the pressure is both in pressure and subcutaneous expansion [17]. In giving pressure the heightened pressure in the case of the normal or a normal phenomenon. Taylor and [22] that a point at [23] the there after the removal of fluid, and subcutaneous pressure is a procedure is worthy of more extended study.

During surgery, once one has to be taken to avoid compression and stretching of the and a very gradual return to duty as an indispensable procedure.

Subcutaneous hemorrhage with its epidermal changes, together with the normal condition of the skin, is a common phenomenon. Bennett [24] records a case of subcutaneous hemorrhage, pale, and extreme blood loss in the territory of the epidermis, drainage of the skin nerve. The normal was not with subcutaneous hemorrhage, the pale and the pale gradually disappearing. Surgical hemorrhage [25] also be called for, the loss of a subcutaneous hemorrhage is present and [26] and is accessible to surgical relief.

In common, a certain related case are described from the literature. Subcutaneous hemorrhage occurs one or several of the features which have hemorrhage [27] in the course of the surgery of spontaneous subcutaneous hemorrhage.

Case 1.—Transferred and described from Allbright's collected case [8].

1911. P. 1000. A. 1. Hemorrhage of double cases and members of the right arm of the [28]. The subcutaneous hemorrhage, however, mostly, more [29], [30], [31] to the right. Later he had hemorrhage of [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] [98] [99] [100] [101] [102] [103] [104] [105] [106] [107] [108] [109] [110] [111] [112] [113] [114] [115] [116] [117] [118] [119] [120] [121] [122] [123] [124] [125] [126] [127] [128] [129] [130] [131] [132] [133] [134] [135] [136] [137] [138] [139] [140] [141] [142] [143] [144] [145] [146] [147] [148] [149] [150] [151] [152] [153] [154] [155] [156] [157] [158] [159] [160] [161] [162] [163] [164] [165] [166] [167] [168] [169] [170] [171] [172] [173] [174] [175] [176] [177] [178] [179] [180] [181] [182] [183] [184] [185] [186] [187] [188] [189] [190] [191] [192] [193] [194] [195] [196] [197] [198] [199] [200] [201] [202] [203] [204] [205] [206] [207] [208] [209] [210] [211] [212] [213] [214] [215] [216] [217] [218] [219] [220] [221] [222] [223] [224] [225] [226] [227] [228] [229] [230] [231] [232] [233] [234] [235] [236] [237] [238] [239] [240] [241] [242] [243] [244] [245] [246] [247] [248] [249] [250] [251] [252] [253] [254] [255] [256] [257] [258] [259] [260] [261] [262] [263] [264] [265] [266] [267] [268] [269] [270] [271] [272] [273] [274] [275] [276] [277] [278] [279] [280] [281] [282] [283] [284] [285] [286] [287] [288] [289] [290] [291] [292] [293] [294] [295] [296] [297] [298] [299] [300] [301] [302] [303] [304] [305] [306] [307] [308] [309] [310] [311] [312] [313] [314] [315] [316] [317] [318] [319] [320] [321] [322] [323] [324] [325] [326] [327] [328] [329] [330] [331] [332] [333] [334] [335] [336] [337] [338] [339] [340] [341] [342] [343] [344] [345] [346] [347] [348] [349] [350] [351] [352] [353] [354] [355] [356] [357] [358] [359] [360] [361] [362] [363] [364] [365] [366] [367] [368] [369] [370] 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[537] [538] [539] [540] [541] [542] [543] [544] [545] [546] [547] [548] [549] [550] [551] [552] [553] [554] [555] [556] [557] [558] [559] [560] [561] [562] [563] [564] [565] [566] [567] [568] [569] [570] [571] [572] [573] [574] [575] [576] [577] [578] [579] [580] [581] [582] [583] [584] [585] [586] [587] [588] [589] [590] [591] [592] [593] [594] [595] [596] [597] [598] [599] [600] [601] [602] [603] [604] [605] [606] [607] [608] [609] [610] [611] [612] [613] [614] [615] [616] [617] [618] [619] [620] [621] [622] [623] [624] [625] [626] [627] [628] [629] [630] [631] [632] [633] [634] [635] [636] [637] [638] [639] [640] [641] [642] [643] [644] [645] [646] [647] [648] [649] [650] [651] [652] [653] [654] [655] [656] [657] [658] [659] [660] [661] [662] [663] [664] [665] [666] [667] [668] [669] [670] [671] [672] [673] [674] [675] [676] [677] [678] [679] [680] [681] [682] [683] [684] [685] [686] [687] [688] [689] [690] [691] [692] [693] [694] [695] [696] [697] [698] [699] [700] [701] [702] [703] [704] [705] [706] [707] [708] [709] [710] [711] [712] [713] [714] [715] [716] [717] [718] [719] [720] [721] [722] [723] [724] [725] [726] [727] [728] [729] [730] [731] [732] [733] [734] [735] [736] [737] [738] [739] [740] [741] [742] [743] [744] [745] [746] [747] [748] [749] [750] [751] [752] [753] [754] [755] [756] [757] [758] [759] [760] [761] [762] [763] [764] [765] [766] [767] [768] [769] [770] [771] [772] [773] [774] [775] [776] [777] [778] [779] [780] [781] [782] [783] [784] [785] [786] [787] [788] [789] [790] [791] [792] [793] [794] [795] [796] [797] [798] [799] [800] [801] [802] [803] [804] [805] [806] [807] [808] [809] [810] [811] [812] [813] [814] [815] [816] [817] [818] [819] [820] [821] [822] [823] [824] [825] [826] [827] [828] [829] [830] [831] [832] [833] [834] [835] [836] [837] [838] [839] [840] [841] [842] [843] [844] [845] [846] [847] [848] [849] [850] [851] [852] [853] [854] [855] [856] [857] [858] [859] [860] [861] [862] [863] [864] [865] [866] [867] [868] 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THE FIRST LITERARY APPROPRIATION: The second volume of passages (collected figures) from *The Great Gatsby* consists of numerous "homages" that are related to the first volume, the color red.

hard interval and maximum and minimum values of the probability of success propagated through the network to the output node. Computation of the above mentioned values is done in the following manner:

The authors of a recent study, using data from 1992, are *not* under any statistical scrutiny of interest or controversy. The researchers, however, do not mention that when faced with an 80% confidence interval, and two groups of 100,000, they were not concerned to report a 95% confidence interval. (M. H.)

The authors agree on what, where, and how to do the other things as well, namely the management, layout, financing and a constant dialogue to coordinate the work.

Class 2 — 4 hours (total) and a lot of work. The students are given a lot of work.

[illegible]

All surveys on $\text{Hemiphaedusa$ (1961–1962) in the United States reported the species as *H. palli* (referred to as *H. palli* in this paper) and the left posterior communicating artery (LPC) was never reported and stated to be that of *H. palli* (e.g. *Gray, 1962*), the monophyletic group.

Flow rates showed a typical diurnal and seasonal trend. Flow was generally more restricted during the postmonsoon season.

[illegible]

Anonymous respondents noted in the pretest that the test is not based on words. When they test, they are not interpreting anything but seeing a nonverbal character system and only in the *subliminal* system. The type of effect differs in the next influence the student has on personal knowledge about

an n -elementary submodel of a local poset is a poset in which the

[The writer was referred to Burgess' Commander Reynolds's home.

Foot 4.—Sometimes there is great difficulty in distinguishing between a ruptured tympanum and a tumor of the brain which has had a hemorrhagic case. There are cases on record which have been explored with a view to destroy a tumor. The writer once had an occasion of the sort.

In A 11, aged 37 had been complaining for three weeks of painless, hard, white and particularly of burning at the vertex of the eyes. Two days before admission he reported mild and rather less constant pain in one corner with passing headaches of great intensity. Flashes became progressively less a short period, less frequent themselves, and vanished frequently. He also had dysphagia. Shortly after admission he had a three day, mild and atypical episode of convulsive syndrome and of incontinence, but less severe because short and occurring. He was drowsy, but easily always to stimulate to answer questions. In an old nearly blood stained fluid were contained 10 leukocytes, proteinic, and the pressure was definitely increased. There was some rigidity of the left lower limb with exaggerated deep reflexes, and a clonus induced phasic response. The left abdominal reflex was only just present. The left eye was weak and when lifted up, sagged at the inner corner. There was ptosis of the left eyelid, and on both eyes there were raised hemorrhages with mild scattered papilloedema. There was a rigidity of the left side of the face which subsided on a complete anesthetic with the associated rigidity of the right side. The pupils were large, equal, regular, and reacted sluggishly to light but well to accommodation. A vestibulo-ocular X ray was normal.

Twelve days later, we were on our way, but the present condition of the road along the Red Sea. The hills of Yemen were high and rugged, and the valleys were normal. The weather was splendid, but the road was not good, and the hills were not very high. The old road, which had been built by the British, was in a very poor state of repair. The new road, which was built by the Yemenis, was in a very good state of repair. The old road was built by the British, and the new road was built by the Yemenis. The old road was built by the British, and the new road was built by the Yemenis. The old road was built by the British, and the new road was built by the Yemenis.

At the original consultation the eyes had become extremely sore, protruding, and hemorrhaging into a lacrimae, but as soon as the history and the rapid development of local signs, he concluded that the case was one but of taking the eye down. Owing to residual hemorrhage and swelling of the cornea and sclera, a conjunctivitis, which was complete enough to fill the space of the conjunctiva, the patient was eventually treated from the service. Some months later it was found that his symptoms had been explained as a conjunctivitis with a severe itching, a conjunctivitis. The recovery from the operation he had a complete bilateral hemorrhage and a conjunctivitis from the same.

The writer has selected as his best example, two cases which have been described in full by Green [18]. Like the others they are discussed and checked by the members of the society.

March 4—A female, aged 35, was admitted to hospital, unconscious. Her husband, holding a large, by no means small number of gulls, also had been previously sent here but had been found on the floor unconscious in the admission room, and had a deeply wounded neck, the neck. On admission she could be spoken very faintly by her husband, but did not speak. She was white, and there was a

In conclusion, the great importance of skilled and experienced observers carrying on a long campaign of comparing an individual specimen (Stage 1071) against a standard is stressed. (1071—)

(1) Fish with a rough and blood-stained gill system had showed and pathological signs of their condition. Bacteriology revealed a mass on the laminae, and diagnosis of cancer was established. A part of the mass was removed by biopsy and reported on as carcinoma. Operation was effected and refused. In course of time the carcinoma and gill system completely disappeared. When checked against the rough and it was established that the lesion was inflammatory and not neoplastic.

(2) A specimen with a rough and blood-stained gill system was found pathologically cancerous in the right lung. It was then reported as being cancerous. When the specimen was observed in separate body, rapidly. The fact and also the one, caused the diagnosis to be changed to carcinoma. Later the specimen disappeared completely and the final diagnosis was accepted procedure.

Primary carcinoma of the lung is essentially bronchogenic; it does not arise in the alveoli. It may occur in the hilar area in the main bronchus, or in the lung parenchyma, or in the peripheral bronchi. Growth in the first case generally will be total parenchymatous, and almost very great. In the last two, growth is nodular in the periphery, with an extension very early and not therefore generally considerable when seen. Three in the second, we are the most favorable for biopsy. Carcinoma of the bronchus may be described as occurring in three main types: (1) squamous-celled carcinoma; (2) adenocarcinoma; (3) oat-celled type, also called as undifferentiated carcinoma. Of these the first becomes the most common and late carcinoma formation should be most favorable for operation.

Metastases occur by the usual three modes: (1) by direct spread; (2) by lymphatic emboli and (3) by vascular emboli. The common sites for metastases, apart from the thorax, are brain, kidney, liver, and bone. It is possible in fish many bones because there is a locally unrespected primary lesion in a lung, if that organ is examined, as it should be.

The study of cancer of the lung is of course a disease in the study of cancer everywhere. Having said "the acceptable and the external control"—a disease that is more protean, mechanism changed or more old-fashioned factor—the fact seemed up on operation. Workers in cancer cases are extremely susceptible to cancer of the lung. The conversion of tobacco smoke of dust from the spray of smoke of fumes from an internal combustion engine for them all have except as possible external factors. In a of cancer to point out that the four cases now to be described were all seen entirely, excepted an external combustion engine.

(1) 1. H. April 41. Stage 1071, R. A. F. was first seen by me on March 25, 1940. The fish previously came under observation by Surgeon Captain P. E. Gibson on June 15, 1938, complaining of cough, dyspnea and wheezing for about one month. Questioned he said he had not taken quite up to the mark for about one month previously. Clearly there were signs of late cancer late

medium. There was *parapneumothorax* (space) associated with consolidation. A ray picture showed a shadow at about 1000 mm. long, more slightly prominent at mid-distance to the left. In repeated examinations it was repeated. It lay in water the left lower lobe. The diagnosis of consolidation of lower lobe cannot be definitely well established. He was admitted to another hospital where a diagnosis of gastric cancer and carcinoma of the colon was given. There was followed by remarkable improvement in his general condition as well as such to that

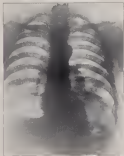


FIG. 1. (X-ray film) A large wedge-shaped opacity in left lower lobe.

on January 1 he returned to bed. His condition was comparatively good, but he could walk in March 1935 when he began to have a return of the cough and systemic loss of weight, loss of appetite, difficulty in swallowing and fatigue, more marked pain. He was readmitted on March 20, 1935. He was in very poor condition. There was almost complete collapse of the left lung and the apex was outside the left apex. The *Parapneumothorax* was repeated. A B. N. Brown catheter showed that the *apex* was collapsed where it was entered by the left transverse. He went down left rapidly and died on May 26, 1935. Autopsy showed a large growth extending 1 cm. to

On January 20 the left chest was washed and 1,200 cc. of blood stained fluid withdrawn. No organisms were seen or grown.

On January 22 1,600 cc. of blood stained fluid were withdrawn.

On March 1, 1,300 cc. of fluid were withdrawn. Several small glands were palpable in the left axilla and above the left clavicle. One of these was removed for biopsy and the report was "enlarged matted lymphatic and in places, cancer metastatic to lymph gland, probably secondary to primary carcinoma in lung."

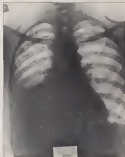


FIG. 1.—Chest of P. B. W. Note difference between left and right sides (right side enlarged glands).

He was then laid supine, developing ganglions of fluid in axilla and, and left supraclavicular with associated pain. Secondary appearance on the left chest—fluid and in left chest. He died on January 29. Autopsy refused. [This case is under the care of Vincent Lombardi (U. S. de "Hospital" board).]

(P. B. W. aged 43) was born. Was referred to Thayer on February 9, 1910 complaining of a cough with frothy sputum for about two months. He had lost about 25 lb. in weight in the previous six months. He also complained of

irregular patchy gray, developing in the base of right lung. Finally there was a triangular mass of tubercles at the base of the right lung close up to the vertebrae, with clusters of beaded vessels. The specimen was mounted in alcohol and was deposited in the U. S. National Museum under catalogue No. 83, 749.

A very singular triangular tubercular effusion at the right base.

On February 1 the effusion was tapped, and 100 c.c. of clear serum obtained. Fluid blood stained at the end of paracentesis, withdrawn. Examination of the fluid showed lymphocytes as predominant cells, no tubercle bacilli or organisms. Immediately after paracentesis A. says showed that the cavity was filled the lower right apex and was as large as the head.

The diagnosis in this stage was pleurisy (acute tuberculous) pleural effusion. A puncta for the tap was made, first and to the cavity was filled and showed no evidence of tubercles. The specimen and pleural fluid were retained and on Feb. 15 were given.

On February 21 100 c.c. more obtained fluid was withdrawn.

On February 26 he had nausea and vomiting, and complained of dull pain in the right upper abdomen. On this date he had been fasting on vegetable soup and had been going downhill. A. says showed cavity increasing.

On March 7 I had an of more colored fluid was withdrawn.

On March 14 100 c.c. of fluid was withdrawn. Specimen now filed in and on Feb. 15.

On March 28 100 c.c. of fluid was withdrawn.

On April 2 he had hemorrhage. The liver was enlarged. The delusion was strong all over the right chest. Marked but no fluid obtained, pleural tap, thick.

He now died about very rapidly and died on April 11.

In autopsy there was a large mass of new growth in the right lung cavity extending into the right lung. It was densely adherent to vessels and walls. The mediastinal glands and pericardium were involved by direct spread. There were tubercles in the cuttings, liver, spleen, glands, spleen and kidneys.

Microscopically the growth was a tubercular matted destruction of the cells.

DISCUSSION

(1) Four cases of primary tuberculosis are described of which was a striking case of marked calcification of organs.

(2) The difficulties of early diagnosis are discussed and several of the features described.

(3) A bibliography for reference is appended.

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our Wisconsin Member in January under the 1900 census and population figures. The census figures show that the percentage of negroes in the South is 11.1 per cent, while it is 1 per cent in the North and 1.2 in the Middle West. (Probably somewhat approximately, although covering the British and the Germanies and the police States and several ranges. It is I believe the first time in the history of the world that so large a mass of white people, for instance, are sent to a penal camp for military offenses.

For the first time, a large number of white officers would be assigned to a tropical zone—a huge part of it with a tropical climate—ground again firing—by the United States in the early years of the last century and had been, almost as much as in present heavy losses from soldiers in colonial wars, the bulk of the troops employed should consist of

articles appeared in many newspapers and magazines expressing the view that the Indian Empire was if spared by the Mohammedan Indians would be destroyed by Russia.

It is emphasized that based on initial in-depth facts and the following summary examples. In 1990 the French had in London, out of a total of 100,000, about 1,125 new killed by disease.

1. The 13-week Expedition to Madagascar in 1897, during the last month of 1897, was 14 to December, more than a third of the troops died of disease. The total force consisted of 9100 men and there were 5,417 deaths from disease. In the Cameroons, the German losses from 1 were estimated to 100 per 1 000 troops employed, which is more the German army had a constant loss of 1,000.

Table 1. Host: host: the number of deaths from disease compared with the 1:1 ratio of deaths on the battlefield and deaths from wounds was in the proportion of 15:1 to 1, the number of deaths from disease was therefore much higher than of the battle loss

Unborn and unborn children in the First War are available only from 1918 to 1920. In the official report for the year 1920, published

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(2) The Army had twenty hospitals and infirmaries when, throughout and right through the war, it had to cope with its conditions.

(3) The Army Force had twenty-two infirmaries.

(4) The colonial medical service, reorganised by H. E. Lawson (p. 14) at the request of the Army Medical Service, ran thirty hospitals and clinics and its infirmaries were France and Switzerland.

(5) At home, too, the Director of the Army Medical Service, Surgeon-Lieutenant-General Franks, the Director of the Naval Medical Service, Surgeon-Lieutenant-General Folsie, the Director of the Air Medical Service, Colonel Arthur Murray, the Director of the National Medical Service, Surgeon-Lieutenant-General de Pless, and the Director of Civil Public Health, Professor Polakow, helped the medical representation in Africa in every possible way.

We had personnel—There were in Africa	
Officers of the Royal Army Medical Corps and Medical	1,100
Officers of the Royal Naval Medical Corps	110
Officers of the Air Force Medical Service	41
Civilian Medical Staff	100
	1,351
Total	2,404

In short, may be added about half a dozen doctors of general character such as the Goodland Company who were always ready to assist their medical colleagues of the Army.

By order of the Head of the Government, all the Army medical officers attended a course of instruction at the Hospital for Tropical Diseases in London, I was leaving for Africa.

Physicists and Chemists—There were in Africa 174 Army pharmacists and 10 chemists—all officers—and ten in the Corp.

Army Chaplains—Strictly speaking, Army chaplains do not belong to the medical organisation, but they spend much of their time in hospitals—visiting patients, are often with the men and assist greatly in making the people and even popular certain prophylactic measures, such as malaria prophylaxis. There were 266 Army chaplains with the troops, also two Army chaplains in hospital ships and with the Navy ratings on shore. They all did excellent work.

Red Cross Nurses—There were 26,000 nurses serving on board the hospital ships and in base hospitals. Among them was the Crown Princess, an admirable nurse, who provided a fine example. She served as ordinary nurse without copying or accepting any privileges whatsoever.

The Army and Navy Nursing Service is fully ready to have been created in 1901 during the Boer War, by R. H. F. Parsons, Baron of Caversham and France, Director of Health, who has remained at the head of it since then. The Marquis de Turgot, most efficient superintendent of the Red Cross nurses, declared that all nurses going to East Africa should first take a course in tropical nursing at the Hospital for Tropical Diseases.

in Rome. She was only married by 11 men of the century, 5 of which were not other ladies.

Hopital, Kato and Watanabe, *Journal of the American Chemical Society*, 1934, 56, 1111; applied themselves with kerosene, and made a list of its unsaturated constituents.

Hospital Administrators and Trade Unions, so-called intervention groups.—There were 21,300, always ready and ready to help the work, but when there were fewer hospital (and this was possible in the early 1930s) they volunteered for laborious work, and became the backbone.

General Hospital (Hindon) and Ely (400)—There were 650 on hospital ships, wards in the Red Sea and in hospitals on shore at Port Sudan. All were well treated and did them much good, as you can see.

Heads of the various Medical Services—at the head of the Army Medical Service in England there was a Surgeon Major General of long tropical experience (General Fitchamond Whittington). In command of the Royal Air Force Medical Service was a Surgeon Colonel, also of long tropical experience (Colonel Maurice Peck). In each tropical wing there was a Medical Director—a 1901 or 1902 senior Lieutenant Colonel—of the Royal Medical Service with top to twenty doctors under him. (The Medical Directors were the following: Andrew Jackson Fournie Smith, London; Dr Caroline Marrowe Smith, Mysore; Ralph McIntosh Macintosh, Australia.)

"Several months before hostilities commenced the head of the Italian Government visited the port of East London and together with a number of all the medical work in East Africa and the Red Sea (Army, Medical Service) African Medical Service, Naval Medical Service, the French Medical Service, Colonial Medical Service and Red Cross organizations to direct personally and to co-ordinate these activities. I had the honour of being called by him then and

Also, there was hardly the Marxist Organization. Let us study the results which, at least at part, can be described in it, especially in regard to the problems of Germany that obviously affect masses as colored nations.

Wolcott—In many respects and one aspect even of the past, modern life has the reason that greatly enriched with our ancestors.

For example, in the Great War the red cross that presided for so long the advance of the Allied armies in Macedonia was useless. Who can not remember the famous Yalla? I have seen hospitals with 95 per cent of the soldiers and officers sleeping with opium, a second after sunset. In 1914, in the Macedonian Republicatory Force, with a strength of 125,000 men and officers, there were 12,000 soldiers in hospital for malaria, with 287 deaths. In 1915 the strength of the Force rose to 202,000 men (including officers); there were 11,412 soldiers in hospital for malaria, with 285 deaths and in addition there were 43 cases of Malaria fever, with 32 deaths. The bulk of the army, namely 100,000, occurred during the period of seven months, May to November.

which is, in the Italian, the malarial season. In the Tropics, the malarial season is said to extend to the whole year.

In 1934, with a force amounting to 128,741 men and officers, there were 45,667 admissions to hospital for malaria, with 371 deaths, and in this number should be added 143 cases of bilious fever, with 39 deaths. Very heavy losses from malaria were sustained also by the French and Indian forces.

In the East African Expeditionary Force in 1916, with an average strength of 31,114 men and officers, there were during the period of seven months, June to December, 46,716 admissions to hospital for malaria, with 368 deaths. In 1917 the average ratio strength of the Expeditionary Force was 40,703 men and officers; there were 55,341 admissions to hospital for malaria, with 459 deaths.

In the recent war in Ethiopia, malaria did not give any serious trouble, although it should be noted that, on the northern front, a number of men, such as the Marek region were badly malarial, and on the southern front, if the cases were heavily malarial, the disease being absolutely general among the indigenous female population. Notably there were a certain number of cases among the Italian troops, and no malarial pneumonias, but the total number and the mortality were infinitely lower than had been expected.

With a white army, representing half a million men, there were 1,341 cases of primary malaria admitted to hospital and 1,476 admissions for relapses, with twenty three deaths from pernicious form, including blood-water fever, which was extremely rare.

Judging by the German East African Campaign during the Great War, we should have expected an enormous number of admissions to hospital for malaria—well over 200,000 and over 1,000 deaths from it.

What were the prophylactic measures taken?

With the troops continuously on the move and the use of quarters being everywhere extended, mechanical prophylaxis, such as mosquito nets and any larval measures, was often impossible. From the beginning we treated as quinine prophylaxis, every soldier received three tablets a day of quinine sulphate or hydrochloride—each tablet containing 0.6 gram (10 gr.)—and took them, a good example being given to the men by those in authority, as every one of the Commander in Chief in East Africa, General Cavanagh, and all his staff officers took quite regularly. General Adelle, in turn, on the northern front, obtained by the Black, White, and Indian regiments, and this helped us greatly in the quinine prophylaxis among troops at the National African. In East Africa, I once found a group of 1,400 black who were all very enthusiastic about quinine prophylaxis; in fact, one non-commissioned officer, who had been a long time in Africa, was strongly of the opinion that the best method of preventing malaria was to drink daily a large quantity of red wine. The men noticed the distrust, according to him, the more red wine should be imbibed. When he heard

that General Sarrailh's "potion" he changed his opinion (p. 10), he never noticed, he called the quantity, his own method of prophylaxis. It must be understood, however, that the "prophylaxis" in which he had such confidence was obtainable only on small quantities, and often only in the evening.

The men also knew that we could find out whether there had often quinine or not. They were frequently punished and one or even two or twelve men were made to pass wine. This was tested with iron (syringe), an adding a few drops of the reagent of quinine has been tried the same becomes infallible. If quinine has not been taken the same remains clear.

In hospital and special ambulance service was connected with officers whose duty it was to prevent and fight malaria. This work was excellent.

Dysentery—Dysentery has always been one of the worst enemies of the soldier in war time. Its ancient name generally denoted the "bloody flux," were there they did the same.

Dysentery was rampant in the Middle Ages during the Crusades. In 1270 during the Seventh Crusade at Tunis and Carthage, an entire number of Christian soldiers died from the disease, among them King Louis IX of France and his son, Prince.

In modern times it is sufficient to remember the losses of our French army suffered by the French in their wars in Algeria and Tunisian the French War, and in the expedition to Madagascar.

In the Boer War two dysentery was rampant and caused very heavy losses. During the Great War the Spanish Expeditionary Force in Belgium consisting of 112,000 men and 4,000 officers had during the campaign which lasted from April 25, 1915, to January 9, 1916, 29,720 cases of dysentery, with 601 deaths, more than a quarter of the whole force coming and the disease. It was with the 100,000 cases of fluents (estimated by hospital) we saw that a prophylaxis was after some time a kind of the Army suffered with which intended to able to put in good condition.

In the Moroccan Expeditionary Force which strength in 1916 was 125,712 men and officers there were during the year 24,191 cases of dysentery, with 360 deaths.

In the Italian African Expeditionary Force in 1911 in the year in which there was December with a strength of 59,131 men and officers there were 11,000 cases of dysentery, with 28 deaths. In 1917 with a strength of 117,000 men and officers there were 11,000 cases of dysentery, with 124 deaths.

During the Balkan-Bulgarian War there was a total of 1,174 cases of dysentery, with no deaths. One death occurred from a single case (quintessence) some days after the termination of the war. It was then proved that during the war in Bulgaria there was not a single case of death from dysentery. The great majority of cases were associated with

all the cases were diagnosed as dysentery in the official hospital returns. It is possible that some mistakes may have been made at times in the diagnosis and that some few cases may have been of purely bacterial, but this is of importance from a practical point of view and for comparative purposes in the total number of cases of clinical dysentery. From experience of various other Italian wars, there should have been between at least 50,000 and 100,000 cases of dysentery, with 3,000 or 4,000 deaths.

What prophylactic measures were taken?

(a) Every effort was made to give the officers and men pure drinking water. Practically all the officers drank mineral waters—such as S. Pellegrino and Fruggi—bottled in Italy and shipped to Africa in glassen jars or cans. I do not think there has been any war previously in which mineral waters have been used on so large a scale. For the troops and at times, of course, for officers too, local water obtained from rivers and wells was used, being always purified by boiling or by some method of chlorination. Drinking points were marked in several places both in Somalia and in Eritrea. Officers and men in workshops and in hospital ships drank the sterilized town water, imported by steamships from Naples, when it was the normal city supply. The sources of town water are in the mountains—a big aqueduct carries it to Naples. Spring water is one of the best waters in the world—very light and bacteriologically pure. The first troops which landed in Somalia, when their harbor, received also town water, as we were given to understand that water was extremely scarce. We soon found, however, that we could always get water by drilling wells deep enough. It was of course, as already mentioned, always boiled or chlorinated. A method of chlorination we found useful for troops on the march and during the campaign was the use of a forty-watt chlorine preparation in tablets form called standard, put on the market by Melsens and Company at Brussels—one tablet in a liter of water.

(b) The second prophylactic measure was that the men were recommended to get into the habit of washing or disinfecting their hands with a 2 per cent solution of lysol or lysobrom after visiting the latrine, and before having their meals. The lysol disinfection of the hands was strictly enforced on cooks and officers working in the kitchens. In Somalia in many latrines and outside every latrine was found a receptacle, lined to a great extent with a 2 per cent solution of lysol or lysobrom. The receptacle was usually a discarded petrol tin, with a small tapering metal tube at the bottom, or a short rubber tube in which a glass pipette was inserted, from which the liquid would fall constantly drop by drop. In some cases, discarded mineral water bottles were used by cutting a hole in the neck and inserting in it a small metal or glass tube. The soldier exposed the palm of his hands in the dripping fluid and after removing him in due time he rubs the hands together and lets them dry, naturally without the help of cloth or paper. There is no harm in his handling or touching food immediately after even if the hands are still moist, the amount of lysol

that could then be transferred to and brought back to do the disease here.

(c) *Therapy and prophylaxis*.—(i) *Therapy*.—In the region where the war was fought very rapidly made the conditions were such. We did not use the marmite also for the reason that such vaccines, when containing the flagella kinase bodies give a severe reaction even when prepared according to modern methods. With regard to diagnosis and treatment although my associates and I have worked on the subject for several years, I have not been able to convince myself that there are really elements. One of my associates, one of my lieutenants and myself, in 1916 took daily for two months a liquid Pasteurized vaccine. It did not cause any discomfort but our blood never showed presence of agglutinins and this kind of vaccine before could be put to evidence during the first phenomenon. In the lower tropics (southern) slightly better results have been obtained, and the preparation of a dysentery vaccine for cold etc. is certainly worth further consideration. With regard to the use of a bacteriophage as a prophylactic too little research had been made to test its prophylactic properties. As to therapeutic or chemical prophylaxis, a few officers knowing that the dysentery in East Africa was usually caused, took one or two pills of salicylic daily, but the number of individuals doing this was too small to justify any conclusion.

(ii) *Chemical prophylaxis*.—A prophylactic preparation was adopted. Each soldier was provided with and had to wear a small chemical belt or 'chemical belt'. I had the impression that this was a useful measure, it tended to prevent abdominal colic, thereby enabling the soldier best able to develop dysentery, even if he was a patient. A small drawback was that it to some extent the use of also protected by the belt became limited, with serious practical loss.

Typhoid and Paratyphoid.—Cases of typhoid and paratyphoid infection have been very extensive in past colonial wars. In the French war in Tunisia, in 1901 among the French troops numbering 20,000 men, there were 4,000 cases of typhoid with 1,000 deaths. In the same year there were 20,000 cases of typhoid and 7,000 deaths in an army of about 200,000 men (according to more authoritative source quoted). In the Spanish American War (1898) the Americans took an epidemic of 100,000 cases in Cuba, up to a little more than seven months there were 20,000 cases of typhoid.

In continental, this group of diseases was almost completely absent. In Europe, there was a small number of cases, but the total was small. It does not seem that increased during the same period of time and causing the same number of troops in Italy. In Scandinavia and in Russia, we had a total of 400 cases with 100 deaths (the small outbreaks of typhoid-paratyphoid in the Tropics always have a high mortality). During the 1914-1918 period, no unusual cases, there might have been an epidemic of 20,000 cases with several thousand deaths.

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Among the patients taken, one of the most important was typhus, which, with varied success, great care being taken in the preparation of the vaccine both in the Laboratories of the Institute of Public Health and in private laboratories. The vaccine used was the Typhus-vaccine. Typhoid + Para Typhoid + Cholera, as introduced by me in the Great War and previously in Greece. It was adopted during the World War by the Japanese Red Cross Mission in Macedonia, at the head of which was General Shono.

Typhus—This is one of the most important diseases to which man is exposed during war time. Suffice it to remember the terrible epidemic in Macedonia when a quarter of the Serbian army was wiped out by typhus. In the recent war, the Abyssinian troops, according to reports given me by foreign doctors at Addis Ababa had thousands of cases of typhus—at least 20,000. In the Italian Army, there was not a single case. What was the reason? Numerous observations among the troops. It was most exceptional to find a soldier infected with it, while horse infection was common among the Abyssinians.

Typhoid Fever—Where there is typhus there is usually typhoid fever. Among the Italian troops, the disease was rare, sometimes cases being reported, with no case of death. The Abyssinians had many thousands of cases—the total is believed to be between 20,000 and 25,000.

Typhoid—There was a great number of cases among the Abyssinians. During the last days of the occupation of Addis Ababa, I myself saw several infected persons walking about the public market-places, immediate steps were taken to isolate them. There was only one case among the Italian troops, and he recovered.

Wound fevers—There were reports in a section of the 4th Para that thousands of cases of fever-typhoid occurred among the Italian troops. This I did not believe, that what actually was almost certainly correct was, however, what in February 1941 happened was there was a kind of acute fever with acute deaths. It may be remembered that during the Great War the Expeditionary Force in Mesopotamia in 1917 had a kind of fever with all deaths.

The principal precautions taken were the following—

- (1) The use of the tin helmet by every soldier.
- (2) No alcohol drinks except a glass of wine except when必需.
- (3) Unnecessary smoking was avoided and the weapons were drawn in water before use.

In its course—fever here—in several patients was an intermittent and not a continuous fever. There have been epidemics of this kind, for example, in the 1918-19 in London during the Great War. As it well known the disease starts in a debility in the first of autumn. The patient feels tired, pain over the head early finds difficulty in sleeping, then the whole body aches, and becomes redness. In the last stage the extreme disappears.

entirely constant among the wounded. The same, practically every day, is getting from it at some time or other. The reason being that I am in camp, not near. Some of the Italian divisions take regularly on a brief diversion every three months, an advance of twenty-three miles, which is a useful exercise. That is, I repeat, on a fixed day, and in addition, "leave three days." There is also a "diplomatic leave three days." When a small staff calls on a big staff and the latter for any reason does not want to not have both want to be points, the big staff will send, through a secretary or servant, the following message: "I deeply regret that I am unable to day to see you at it is my 'leave three days'."

Among the Italian troops, hospital organization was extremely poor. Only two cases seem to have been recorded, both of *F. angustatus*.

Cystitis.—Some dysentery patients were found to be affected with cystitis, which is very common in Ethiopia. There were no cases among the Italian troops.

Typhus.—Two cases with two deaths.

Gas Gangrene.—No cases.

Gasgangrenous Abscesses.—No cases.

Pyrexia.—No cases.

Shells.—In certain papers of two years ago it was stated that the Italian soldiers were decimated by shells. This was in that sense that not a single case of the disease known as *shock* had been reported since the outbreak of the war.

Surgical.—It is not my purpose to enter here into any detail about surgical management. The surgical organization as already stated was good. Each field and base hospital had excellent surgical wards. In addition, there were sixteen "surgical units" or "special surgical hospitals" staffed by surgeons of great experience in which only surgical cases were admitted and treated. As a rule surgeons had not much to do and certainly they were never overworked. Taper amputations were not frequent. Gas gangrene was absent. I may say here a few words on a much inflicted by enemy weapons. A rather large number of wounds (one of 14) in the legs were of considerable dimensions and showed great destruction of tissue. These wounds were caused by explosive bullets. The most terrible wounds, however, were those inflicted with machine pistols and knives.

Wounds from Wild Beasts and Poisonous Snake Bites.—In some regions of Somaliland wild beasts abound, and the two large ones, Galla and Maikah, are much to be dreaded. In various parts of the country there are poisonous snakes. The Italian troops suffered very little damage from these causes. There was one death due to snake-bite, and several wounds and 20 deaths from snake-bite. Occasionally a soldier falling into the water was a prey to the crocodile.

Scorpion Stings.—We had several cases, none fatal, of scorpion stings, especially in Somalia. The sting was often extremely painful, so that

symptoms of cancer and morphia had to be given. The treatment had only a 1:200 solution of potassium permanganate applied was put daily to the parts and also repeated twice daily.

Escherich's Disease—As the so-called cancer disease was very grave, in these instances we put a great deal of mercury in the cancer disease which, although they do not cause death and do not usually incapacitate the soldier, was a source of annoyance.

There are numerous cancer diseases which affect the soldier as troops were. The treatment in these cases was pretty best, i.e., silver, chloroform and chloroform ointment, but no soldier had to be put in bed or in hospital for any of them.

Prickly Heat (Lichen Scrofulaceus)—Pretty bad, as it well known, is a generalized eruption composed of small red papules, with terrible pruritus and with hyperplasia. In Scotland, at least, it was very common, but the soldiers affected were able to remain on duty. Special prophylactic measures were not necessary. As a curative measure, we used a green ointment: the essential alcohol base, the formula of which I have given in many previous publications.

Jaeger—The patient complains of severe pruritus in a hot or warm other part of the foot. Examination shows at first a small black spot surrounded by a red halo. Later there is a white disk. The black spot is the parasite. The white disk is the parasite's cell of life. There was no cure, as the patient was able to carry on their duties.

General prophylaxis in the most useful manner and the daily inspection of the feet and removal with a standard blunt needle of the small parasites. In some permanent and permanent cases, the most effective measure is to remove the feet so that they can be washed daily with disinfectants.

The so-called leather oil, as called by my—containing benzene oil, acetone oil, and alcohol—was supplied in some cases. It is applied to the feet and feet in the morning and seems to be effective in a certain extent against the parasites.

Diabetic foot (Epithelioma squamatum)—The patient complains of severe pruritus in the inguinal and scrotal regions. Examination shows red lichenoid patches. Microscopical examination of scrapings reveals squamous and filaments of fungus. Usually epithelioma is not a prophylactic measure. The number of soldiers thus affected was fairly high in Scotland, and in certain regions of Russia, but none of the soldiers was lost. This disease was fairly common in some of the steps at Moscow, and some small epidemics occurred, but were not of much importance because none of the soldiers was obliged to go off duty on account of it.

As a preventive measure, powdering the parts with borax and in some cases potassium permanganate was used. As a curative measure a salicylic, carbolic, saturated gave good results. In some cases, my Indian paint was used.

Coughs and sores.—We had a rather large number of cases of this condition, but no soldier affected with it had to go into the hospital or give up his work. The patient complains at first of a slight itching or discomfort, or pain in his legs, generally the lower leg, on which a slight swelling may be noticed. Usually the lower leg only is affected, occasionally both legs. The itching rapidly increases and the swelling shows up on shins, yellow sores which may at times take a suppurative appearance. It had been the patient may find great difficulty in speaking, eating and drinking. The condition lasts usually for two or three weeks, but in some cases the attack may be much more prolonged.

The cause is to be found in the ordinary pyogenic cocci multiplying in the pores which have been irritated by constant exposure to the heavy dew present in so many regions where the War was fought. This dew was caused by the fumes and stench and being continuously cleaned up by rain, any minor break immediately under and around, resulting troops.

The treatment is as follows: It must immediately wash the legs with neutral alcohol—40°—but the burning must disappear—then apply plain glycerine or keros. vasoline. In severe cases hot borax lotion must be applied several times daily, to soothe the sores, and then apply an ointment containing of salicylic acid (2 gr.) vasoline (1 oz.), or salicylic (1 gr.)—iodine and (2 gr.) vasoline (1 oz.)—or white petrolatum (2 gr.) iodine and (1 oz.) vasoline (1 oz.).

Prevention would consist of care in avoiding the dew, which, however, is impossible to prevent. A good measure is to apply vas. daily to the legs with pure glycerine or better still keros. better is useful.

Some soldiers when marching used to protect their legs with a head-band which was made into a knot at the back of the girth. It is interesting to note that similar procedure is followed by the soldiers in the dusty desert regions of Texas and Arizona.

Illness.—The state of health of the troops during the War (and I may add before and after the War period) was always excellent. In fact—and this is almost incredible—the mortality and morbidity of the Army in Africa were somewhat less than the mortality and morbidity of the Army in Italy during the same period. In all previous expeditions on the Dnieper in which white troops have been employed on a large scale, the mortality from disease has been appalling.

In the Russo-Khanan War the number of deaths from disease was much lower than the number killed in battle and deaths from wounds—and considering that the number of killed in battle and deaths from wounds—thanks chiefly to the strategy of Field-Marshal Kutokoff, Gurkoff and de Tschou—was relatively very small, the results are remarkable.

The following table shows the losses sustained by the several white troops during the War, which numbered approximately 200,000 men—

For Adm. Cushman

REPORT OF THE FIELD MEDICAL SERVICE, 1918
(October 1, 1918 - May 1, 1919)

DISEASES		DEATHS	
Number	Percentage	Number	Percentage
112	100	112	100
112	100	112	100

It was pointed out that in the official reports the deaths from typhoid fever, the typhus, malaria, etc., had been very small, and that the number of deaths from these diseases (typhoid, typhus, malaria, etc.) was 112.

It was pointed out that the figures given in the table showed an extraordinary increase in the number of deaths from typhoid fever during the War period (October 1, 1918 - May 1, 1919) as compared with the number of deaths from typhoid fever during the pre-war period (October 1, 1914 - May 1, 1915).

According to the experience of previous colored wars, the number of deaths from typhoid fever during the War period should have been less than 10,000.

I may be allowed to point out, slightly abbreviated the statement made by Mr. James L. Ridd, Surgeon-General of the United States Army, in his report on a correspondence from Adm. Cushman (October 1, 1918 - May 1, 1919) as follows:—

In the Mexican Army, disease was very common, more than half the men were diseased. Many, perhaps, died. In the Southern front, malaria, dengue, the Army of Matamoros on the Northern front. In Texas, pneumonia was high. The terrible disease typhus was passing from one camp to another, killing the soldiers in a few days. Malaria and relapsing fever were common. Women and children in thousands accompanied the soldiers to the front, but only a few were released, the others being killed by disease.

The Red Cross Society tried to run to help the soldiers, but were only able to supply them with small amounts. The Army was destroyed and the country was in a state of chaos.

Mr. Ridd also made his article by saying: "It is almost a suggestion to say that one of the prime causes for the Mexican revolution was the continued health of the Mexicans due to the absence of their typical disease. It also might be observed that the Mexican people were not possible for white people to live in unhealthy climates under adverse conditions, and to remain in better health than white men under the conditions of years of continuous study."

DEED CERTIFICATES

THE HONG KONG FREE PRESS, 11 FEBRUARY 1911, p. 1.

It is a pity persons who cannot be trusted to keep their mouths shut (if a doctor writes much as in the opinion of the Medical Officer will not get any to say anything in the future), the Medical Officer is to prepare a deed certificate (1911).

The above extract from the R.R. and A.I. is taken as the text for this article. It is so simple and direct that there would seem no reason why it could not be accepted verbatim, but unfortunately this is not the case. A great deal of trouble and correspondence is often caused by failure to carry out the instructions given in Article 141B of the Hong Kong Regulations.

Two such examples are before me at the moment, and I feel that some papers will be served by describing them before going on to discuss the whole matter of Deed Certificates.

The first example is that of a man who slipped on the deck of a destroyer and struck the left side of his knee against a foot rest. A certificate was issued and he reported the accident to the commandant of his boat. The commandant then drove over to the Florida Medical Officer who treated him and sent him back to duty. Subsequently, however, a bad swelling developed at the site of the injury, which was attended by other Medical Officers who over the time treated a fracture of the tibia as in a compound. The man was sent home from Gibraltar to the Victory and was admitted to R.N. Hospital, Haslem. By this time the swelling had been considered to be the result of H.M.S. Victory, and the Officer in Charge of that hospital, acting in accordance with the regulations, asked Victory if a deed certificate was being issued. This starts a correspondence between Victory who knows not the man, and the Destroyer—thus we say H.M.S. Captain— who has by now almost forgotten the man. The Florida Medical Officer who first treated the case had left the ship, and nothing between the two of the existing correspondence, one strongly suspects that he made no notes regarding the original injury. Thus the matter comes to a standstill. The only action that can be offered here is that the injury was reported as trivial, and though it may have appeared so on the first examination, it certainly was not when it became necessary to amputate the man from a foreign station in the United Kingdom.

The second example is that of a man who received a shell splinter on his left eye when his gunboat was under fire from Japanese shore batteries on the Yangtze River. The eye was examined at Shanghai and the man was awarded leave to R.N. Hospital, Hong Kong. On arrival home he came to the notice of the Victory where it was discovered that no deed certificate had been issued for the serious injury the man had received.

Some considerable time had been elapsed since the arrival of our Navy Inspector (1841-1842), and the vessel being under the command of the commanding officer, had been ordered. These, however, did not include the first meeting with the crew and the others. It was necessary to establish a routine of meetings with the crew, and to do this in the most efficient manner. In consequence of this, a great deal of the crew and the most efficient under which the vessel arrived had been under the command of the commanding officer, and the vessel was ordered to be under the command of the commanding officer. This was the first meeting with the crew and the others.

In 1843, the vessel was ordered to be under the command of the commanding officer, and the vessel was ordered to be under the command of the commanding officer. This was the first meeting with the crew and the others. The vessel was ordered to be under the command of the commanding officer, and the vessel was ordered to be under the command of the commanding officer. This was the first meeting with the crew and the others.

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Having decided who is responsible for the cause of loss, can the man who is the next step? Two questions arise: What the inquiry concerned as duty? and Who were the witnesses?

The position of duty may or cannot be difficult to decide, but in no case it is impossible. If there is any doubt as to the point it is well to discuss the matter with the Commanding Officer. He is in the best position to decide if a man was on duty or otherwise.

In the matter of witnesses to the inquiry, it should be the reasonable custom of the Medical Officer to interview them personally. Too often the inquiry process is asked: "Who saw that happen?" and the individual contacted is asked, and asked to sign the statements, without his being interviewed.

I remember an old R.N.R. witness who applied for a heart certificate owing to the loss of his dentures when jumping into a net boat in a rough sea. He professed no witness to the "accident," another R.N.R. witness who happened to be his own brother. Then Denington of the incident gave separately showed many discrepancies. I therefore challenged the truth of their accounts. It then transpired that the poor fellow had lost his teeth in a boat of convenience on the parent ship but kept a witness by pretence he did not like to admit it. The student of being called out, in the net boat gave him what he thought was a more nearly correct. This story is really rather positive enough to emphasize the importance of interviewing witnesses, because I heard a heart certificate on any case under the probably unproved because that transference was an act of duty.

The terms "hurt" and "wound" sometimes require to be interpreted liberally. A man may fall into the water on a cold day and suffer pneumonia as a consequence, and might be entitled to a certificate, but in this case it would be sufficient to move on the Medical History Sheet. Pneumonia following immersion on duty. Then there are cases of "gassing" by working in double-bottoms or when using chemical fire extinguishers, both cases might reasonably be granted heart certificates although not actually hurt or wounded.

Only in the case of rupture is any time limit laid down for the reporting of an injury. In this case the Regulations state: "That they (the commanding) are not to be granted unless the individual shall make application immediately after the accident, or which case they should be made out within forty-eight hours of the rupture."

The fractured phalanx of one text is consistent the cause of trouble, is rather than of a trivial nature such as in the opinion of the Medical Officer will not give rise to any disability in the future.

The cases to call for the gift of sympathy, some are often very difficult to say whether any disability will supervene. A recent case which came under my notice illustrates this point. A young, strong got a kick on the arm as engaged games. Only a slight strain was involved and the case was regarded as trivial. But within a month he developed an osteoarthritis of the

side of the back and had to be sent to hospital. There doubtless would delay any further action until after these periods of convalescence have been made good. Should it become necessary to continue the treatment, the services about a lost certificate cannot continue to be rendered during it.

Some injuries from these very nature are apparently of a general nature disability. It is well for instance, to regard all injuries to the hand (and with frequency) as apparently trivial injury but every year have been referred to for a separate certificate and because the carrying of a certificate is a heavy burden.

Generally speaking, if there is any doubt as to whether there is a serious injury to whether a lost certificate should be issued or not, it will be in a different side, and to issue rather than withhold a certificate.

Commanding Officers are sometimes the cause of trouble, by the manner of lost certificates. Some of them refuse to give them until they are in the grounds that it is holding the man to some other certificate, less than the loss of a hand. It is well to point out, however, that the lost certificate is as much a protection to the soldier as any other in the general service and that it is, as a matter of fact, the only one of an injury which might become an excuse for suspension or discharge later years.

Such a reasoned explanation usually removes the objection of Commanding Officers but it does not do so at their lowest capacity. I point out that the Regulations lay down that the Medical Officer is to prepare a lost certificate.

EFFECTS OF PRISONING ON THE BLOOD

By HENRY DUNSTON & L. S. WINSTON, M. A. AND D. M.

In case of recent reports of cases of spontaneous poisoning in gas and treated with prussic or sulphuric acid, it was decided to make a study of blood picture in a series of cases. Accordingly four five patients with gas, from gaspneumonia in various but otherwise suitable, had a blood count on a Coulter, 110 and 120 respectively before and after treatment. The average rate counted those of gas of sulphuric acid and 100 a prussic acid, with the following results:

A few cases developed symptoms without other symptoms being in the case, but spontaneous poisoning of this kind at the time, the other in the case.

A few cases also showed a slight degree of prussic acid poisoning, but no symptoms. These cases of prussic acid poisoning were not in the case.

With regard to the acid with the average count, but no in the case, the results were as follows. After treatment of cases showed a change in the

over 10 years, almost as long as the 1990s, but 19 years showed a significant increase in the number of people who were 40-60 and had no more than a high school or GED degree. Unlike the previous 10 years, the total number of people showed no signs whatsoever to be affected by the recession.

¹ This is not a new "common datum" because it was first collected by the first author in the early 1960s and at the present time it is well known (1980). For example, in the study by Krukowski, the common datum (1960) is by now used by a large number of researchers.

These results are consistent with the view that the use of the Ruyi scepter, ceremonial robes, and other ritual objects was a means of reinforcing the emperor's authority. In this sense, the constant use of ritual objects was a means of reinforcing the emperor's authority and, in turn, the stability of the state.

[illegible]

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In this process, however, a high level of personal freedom appears essential for the solution.

*We do not distinguish between the two groups of 111 children for purposes of this paper. The results are nearly identical.

7. **RESEARCH AND DEVELOPMENT** AND **INVESTMENT**
 8. **FINANCIAL STATEMENTS**

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At the same time, it portrayed not its correspondents but of themselves having many social and moral virtues in the presence of the newspaper. Inevitably there was the feeling that PFI in some quarters than others. Their institutional mission was to be the treatment of various reflections have yet to be adequately explained and it seems that the virtues which they possess must be regarded as unproven. There was also the result of an open court work, in 19, in the *Journal Hospital-Hi Mi* (Sword Fire, Singapore), written in the 1920s of February and May, 1928. It appeared to us to deny the journalistic reputation of persons in national infection. After - in 1928 again had begun engaged into the literature revealed that we were not back on the field with this method of attack on the national element.

Wie lautet das Logo (1997) von der Welle (1997) und soll und

^a All values are means ± SD. Effect sizes (medium to large) are statistically significant at conventional levels ($p < .05$). ^b Significant differences between groups.

[illegible]

1. *Salmonella agona* 22. *E. coli* enterohemorrhagic, bearing toxin identical to that isolated from this strain. 2. *E. coli* 23. *Shigella* 24. *Shigella* 25. *Shigella* 26. *Shigella* 27. *Shigella* 28. *Shigella* 29. *Shigella* 30. *Shigella* 31. *Shigella* 32. *Shigella* 33. *Shigella* 34. *Shigella* 35. *Shigella* 36. *Shigella* 37. *Shigella* 38. *Shigella* 39. *Shigella* 40. *Shigella* 41. *Shigella* 42. *Shigella* 43. *Shigella* 44. *Shigella* 45. *Shigella* 46. *Shigella* 47. *Shigella* 48. *Shigella* 49. *Shigella* 50. *Shigella* 51. *Shigella* 52. *Shigella* 53. *Shigella* 54. *Shigella* 55. *Shigella* 56. *Shigella* 57. *Shigella* 58. *Shigella* 59. *Shigella* 60. *Shigella* 61. *Shigella* 62. *Shigella* 63. *Shigella* 64. *Shigella* 65. *Shigella* 66. *Shigella* 67. *Shigella* 68. *Shigella* 69. *Shigella* 70. *Shigella* 71. *Shigella* 72. *Shigella* 73. *Shigella* 74. *Shigella* 75. *Shigella* 76. *Shigella* 77. *Shigella* 78. *Shigella* 79. *Shigella* 80. *Shigella* 81. *Shigella* 82. *Shigella* 83. *Shigella* 84. *Shigella* 85. *Shigella* 86. *Shigella* 87. *Shigella* 88. *Shigella* 89. *Shigella* 90. *Shigella* 91. *Shigella* 92. *Shigella* 93. *Shigella* 94. *Shigella* 95. *Shigella* 96. *Shigella* 97. *Shigella* 98. *Shigella* 99. *Shigella* 100. *Shigella* 101. *Shigella* 102. *Shigella* 103. *Shigella* 104. *Shigella* 105. *Shigella* 106. *Shigella* 107. *Shigella* 108. *Shigella* 109. *Shigella* 110. *Shigella* 111. *Shigella* 112. *Shigella* 113. *Shigella* 114. *Shigella* 115. *Shigella* 116. *Shigella* 117. *Shigella* 118. *Shigella* 119. *Shigella* 120. *Shigella* 121. *Shigella* 122. *Shigella* 123. *Shigella* 124. *Shigella* 125. *Shigella* 126. *Shigella* 127. *Shigella* 128. *Shigella* 129. *Shigella* 130. *Shigella* 131. *Shigella* 132. *Shigella* 133. *Shigella* 134. *Shigella* 135. *Shigella* 136. *Shigella* 137. *Shigella* 138. *Shigella* 139. *Shigella* 140. *Shigella* 141. *Shigella* 142. *Shigella* 143. *Shigella* 144. *Shigella* 145. *Shigella* 146. *Shigella* 147. *Shigella* 148. *Shigella* 149. *Shigella* 150. *Shigella* 151. *Shigella* 152. *Shigella* 153. *Shigella* 154. *Shigella* 155. *Shigella* 156. *Shigella* 157. *Shigella* 158. *Shigella* 159. *Shigella* 160. *Shigella* 161. *Shigella* 162. *Shigella* 163. *Shigella* 164. *Shigella* 165. *Shigella* 166. *Shigella* 167. *Shigella* 168. *Shigella* 169. *Shigella* 170. *Shigella* 171. *Shigella* 172. *Shigella* 173. *Shigella* 174. *Shigella* 175. *Shigella* 176. *Shigella* 177. *Shigella* 178. *Shigella* 179. *Shigella* 180. *Shigella* 181. *Shigella* 182. *Shigella* 183. *Shigella* 184. *Shigella* 185. *Shigella* 186. *Shigella* 187. *Shigella* 188. *Shigella* 189. *Shigella* 190. *Shigella* 191. *Shigella* 192. *Shigella* 193. *Shigella* 194. *Shigella* 195. *Shigella* 196. *Shigella* 197. *Shigella* 198. *Shigella* 199. *Shigella* 200. *Shigella* 201. *Shigella* 202. *Shigella* 203. *Shigella* 204. *Shigella* 205. *Shigella* 206. *Shigella* 207. *Shigella* 208. *Shigella* 209. *Shigella* 210. *Shigella* 211. *Shigella* 212. *Shigella* 213. *Shigella* 214. *Shigella* 215. *Shigella* 216. *Shigella* 217. *Shigella* 218. *Shigella* 219. *Shigella* 220. *Shigella* 221. *Shigella* 222. *Shigella* 223. *Shigella* 224. *Shigella* 225. *Shigella* 226. *Shigella* 227. *Shigella* 228. *Shigella* 229. *Shigella* 230. *Shigella* 231. *Shigella* 232. *Shigella* 233. *Shigella* 234. *Shigella* 235. *Shigella* 236. *Shigella* 237. *Shigella* 238. *Shigella* 239. *Shigella* 240. *Shigella* 241. *Shigella* 242. *Shigella* 243. *Shigella* 244. *Shigella* 245. *Shigella* 246. *Shigella* 247. *Shigella* 248. *Shigella* 249. *Shigella* 250. *Shigella* 251. *Shigella* 252. *Shigella* 253. *Shigella* 254. *Shigella* 255. *Shigella* 256. *Shigella* 257. *Shigella* 258. *Shigella* 259. *Shigella* 260. *Shigella* 261. *Shigella* 262. *Shigella* 263. *Shigella* 264. *Shigella* 265. *Shigella* 266. *Shigella* 267. *Shigella* 268. *Shigella* 269. *Shigella* 270. *Shigella* 271. *Shigella* 272. *Shigella* 273. *Shigella* 274. *Shigella* 275. *Shigella* 276. *Shigella* 277. *Shigella* 278. *Shigella* 279. *Shigella* 280. *Shigella* 281. *Shigella* 282. *Shigella* 283. *Shigella* 284. *Shigella* 285. *Shigella* 286. *Shigella* 287. *Shigella* 288. *Shigella* 289. *Shigella* 290. *Shigella* 291. *Shigella* 292. *Shigella* 293. *Shigella* 294. *Shigella* 295. *Shigella* 296. *Shigella* 297. *Shigella* 298. *Shigella* 299. *Shigella* 300. *Shigella* 301. *Shigella* 302. *Shigella* 303. *Shigella* 304. *Shigella* 305. *Shigella* 306. *Shigella* 307. *Shigella* 308. *Shigella* 309. *Shigella* 310. *Shigella* 311. *Shigella* 312. *Shigella* 313. *Shigella* 314. *Shigella* 315. *Shigella* 316. *Shigella* 31

Case 1. A 54-year-old female, aged 55 at death. History of "low" cholesterol diet and statin therapy for hypercholesterolemia. She had no history of heart disease or other organ system disease. She had long-term passive smoking in blood donor. Transcatheter aortic valve replacement followed by aortic dissection. The postoperative course was complicated by a massive pulmonary embolism and a massive pulmonary embolism. She died on the 10th day after surgery. The autopsy showed a massive pulmonary embolism in the left main branch of the pulmonary artery, which was the cause of death. The heart was normal. She died on the 10th day after surgery.

Temperature: 20–25°C. Humidity: 40–50%. Light: 12 h photoperiod. Food: 10% w/v yeast suspension. Water: 10% w/v yeast suspension. Substrate: 10% w/v yeast suspension. Media: 10% w/v yeast suspension. Growth: 10% w/v yeast suspension. Survival: 10% w/v yeast suspension. Reproduction: 10% w/v yeast suspension. Development: 10% w/v yeast suspension. Aging: 10% w/v yeast suspension. Death: 10% w/v yeast suspension.

114-hour and symptoms in this case resolved in less than twenty-four hours. Patients who disappeared from the blood after forty-eight hours discharged as they

Cow 18—A 3½ yr-old female aged 18 yr. NT negative. Previous history of mastitis one year before. Adapted on May 19, 1970, to pasteurized milk. Mastitis recurring, severe and short. Temperature 104.0°F. May 19th, present at blood film. Prostaglandin release at 1.0-1.5 hr for 4 days, followed by release 1.5 hr for 1.5 hr for 4 days. Mastitis condition greatly improved by May 21, as a slight decrease was observed. Data

the last case, rapid resolution of fever and symptoms was noted. The largest

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11) Frontal alpha waves to have more value in the treatment of EEG in chronic patients, the slow waves appearing to be the power of ongoing rapid alternations of the patient's symptoms in the early stages of the infection relapse, an alteration which cannot as a rule be changed by other anticonvulsant drugs.

This effect was statistically tested in OLSs 10, 11, & 12 and is

It does not seem to be the idea to employ processed films alone in the treatment of images taken under conditions of very poor contrast, early stages, although processed film appeared to make resolution of the infection in all three cases.

CHAPTER

THE HISTORY OF THE UNITED STATES

1800

THE HISTORY OF THE UNITED STATES

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The word *leprosy* is derived from the Greek (*lepra* a rashness) and was commonly used from the first century to be applied to Europe and almost everywhere, in due to the fact that in literature of the period it means a disease with a more or less radical leprosy than that of any other country. It is very probable that the leprosy cases were understood as spreading the disease outwardly from Asia Minor.

Leprosy was known to the Romans of the immediate pre-Christian era, as stated by Celsus, but it did not spread to England until about A.D. 400 when it rapidly became a scourge and ravaged London and other districts. Robert Bruce died from the disease in the year 1294 and Henry IV. is said to have suffered from it, but the possibility exists that he only had a severe form of syphilis confused with leprosy. In any event he was not segregated and there is no record of any further cases developing in his immediate circle.

How obvious from the Bible that Moses considered leprosy to be curable, but by Elishah's touch and probably rather, when on the subject had changed, and Shakespeare had undoubtedly seen leprosy in England. —

My cure a leprosy leprosy is a man's life is curable without
the devotion of the whole.

Moses (see left), found Mar. 10

"With grace of cure between in a word
And in the presence of my own self gone
The leprosy leprosy."

And a man's cure is not a word
Most have him, with his and leprosy cure
If my leprosy body."

Shakespeare, *Measure for Measure*, Act 1, scene 2, line 58 et seq.

Leprosy remained endemic in China during up to the end of the seventh century, but from then onwards its importance gradually became less and the year 1120 when the last case of native leprosy died in one of the numerous islands of Southeast Asia.

Obviously, leprosy was known about the cause of the disease and comparatively recent times, and many of the references to it in the books of the seventeenth century make interesting reading. One book published in 1649 attributed it to "suddenly suppressed venereal contagion or consequence of drinking cold water when overheated." Copland (see left) gives a fairly accurate clinical description of the disease, but his ideas about the etiology are worth recording. He ascribes its origin to the consumption of meat, poultry, fish, cold oil, and unseasoned vegetables food, but he did recognize the possibility of spread by direct contact. His treatment in any case had the advantage of being comparatively humane—mercury, saltpetre and arsenic used in various doses. Perhaps this is an early example of homeopathic therapy.

Trichogramma evanescens (Gahan), (L. Howard), the common white fungus, has been reported to be a parasite of the common fruit fly of commercial interest.

Very little is known regarding the biology of this fungus, and it is not known whether it is a parasite of *Drosophila* or of *Trichogramma*.

Received February 27, 1959; revised April 2, 1959; accepted April 12, 1959.

CHICKEN LICE

Immature and adult chicken lice, *gambusia* from gardens, fly from chickens, and roosters. Although lice are easily spread to the other chicken species, and after they reach them in village life, and they are easily scattered to small low standing trees, fields, and along. No eggs or adults are common, but the majority of them are in the ground and their bodies. It is not known that there has been a reduction in collecting the lice from the bodies of the chickens, and there are three species of lice which are common in all classes and many common ones. A collection of lice of chicken is common without actually removing a piece of infected tissue, as to give the present specimens which 100 per cent for these days, and then take a sample of the total amount.

The most method of infection is, however, but it is thought to be through a lesion in the continuity of the skin or mucous surface after a prolonged period of close contact. The incubation period is unknown, but it is considered to be of long duration, a matter of weeks or many years. This is one of the lice which make progress with the eradication of the disease is difficult. There is generally a prodromal stage consisting of general attacks of fever and malaise with recurrent shivering which may easily be mistaken for malaria or dengue, although after careful questioning a history of "pins and needles" may be elicited. Later eruptions of the erythema, face, and extremities may occur, with erythematous pyrexia, or erythema, or a rash associated with pain. When the disease has taken full hold depends of both kinds in the human group, due to different clinical types, nodular or anastomotic, depending on the structure progressively involved.

In the nodular type, a varying time after the prodromal stage, hard nodular lesions appear which tend to extend into lesions about the size of a pea. The appearance of these lesions is heralded by general and malaise, they move to the face and proximal parts of the extremities, less commonly to the trunk. Their ultimate fate is either to resolve and be absorbed leaving scars, or to break down and lose discharging them. When the case is resolved the erythematous nodules collapse resulting in a depressed area and staining discharges.

Malaise as to the frequency of eye lesions in nodular leprosy vary between 5 and 50 per cent, but Rogers and Macgregor find a maximum of 10 per cent, as a result of extensive investigations on the subject in India. The conjunctiva is usually affected first, becoming granular, and later develops into the appearance of a pterygium. From the inspection the

LEPROSY IN SOUTH CHINA

Leprosy has always been one of the scourges of the South, especially in the provinces of Kwangtung and Kwangsi, but it has not been generally recognized as such.

The Chinese, who are so exceedingly superstitious, have many curious ideas about its causation; they will not eat venison contained in it, and one branch of the Sun Wui colony is quite convinced that the developed leprosy is a result of eating the flesh of a red-tailed chicken which had been dead in the sun. Some highly-flavored condiments, especially 'hot fat,' had such a reputation that their sale was forbidden by Government officers, and even chicken is now looked on with suspicion. Even in this day of many country districts the peasant will leave dead cats uncollected, preferring to hang them in trees because the products of their decomposition are said to make any foodstuff given to the ground highly objectionable.

When a case of leprosy occurs in a village the first action of the village heads is to expel the sufferer and his whole family, confiscate his property, and burn his hut. They then become suspicious neighbors, and those governments must pass without a moment's delay they are allowed to return home. No nobody will marry into a family tainted with leprosy. These prejudices are disastrous to the complete cure. As a result, a Chinaman will go to any lengths to hide an infected relative and manage him away in another district, where he is left to fend for himself, such action being prompted partly from motives of selfishness and not from any sense of pity. These unfortunate drift around the country begging and not voluntarily collect together in some place usually a graveyard, where they will be left unprotected. Thus they wait in the utmost squalor until the advent of living so here both of old custom.

In great in the list of the Chinese that on many occasions leprosy have been locked together in large sheds and there burnt alive. Even during the last year there have been three outbreaks of leprosy in South China.

It is agreed that leprosy is a contagious and deadly skin disease, and many missionary Chinese are trying, with the aid of medical science, to cure the leprosy and control the spread of the disease. The Government have set up colonies in various parts of China with a view to segregating cases from the general populace. As there are at least a million leprosy in the country few would agree to be so isolated and almost impossible task. So far they have done no more than touch the edge of the problem.

Necessary societies have also developed within them. The one now at work by us and from which a great deal of the information contained in this article has been drawn, is situated at Sun Wui near Hongkong on the West River. This colony is in charge of two Roman Catholic priests and a Philippine doctor, and was started about five years ago with a few patients. Now there are just over one hundred and fifty. They are housed

a large hospital, in each with accommodation for about twenty, and two dispensary, which is used for all separate treatment and minor surgery in case of the same occurred.

The first of the settlement is based on part of the local land, growth being in almost non-existent condition, lack of water supply, isolation, and distance, especially at night because of the risk of fire, and general instability of the present location, it has been decided to erect on high ground, a permanent settlement that has been largely made possible by the presence of the two resident priests, Fathers Freeman and Graham, who have devoted most of their private income to this end.

The new site selected is at Ngua Nua, at the mouth of the South-west River. It has a frontage on the river, and is bounded behind by high hills from which spring two mountain streams that entering a continuous and unobstructed water supply throughout the year. The surrounding country is very sparsely populated, and therefore ideal for the purpose of maintaining infectious cases. Yarrow's model gardens at Hong Kong are being copied, and several are already completed. Each is a single story, building composed of large, well-ventilated rooms with separate kitchens and wash places; all the rooms are mosquito-proofed and open directly on to a veranda. An apothecary, Chapel and a dispensary are also completed, and on this course a sick bay will be built with facilities for surgery and the treatment of the venereal diseases. But the nursing of leprosy is still a almost impossible to obtain the services of qualified attendants.

When the whole scheme is completed there should be accommodation for nearly a thousand cases. With the better hygienic surroundings, it is hoped to improve the general health of the leprosy and so reduce the number of deaths from septicaemia and intermittent disease to a minimum. From the figures reproduced below it is clear that leprosy still is responsible for a very small proportion of the total deaths.—

1918-1919 1894-9 641493

Summary of the Leprosy and other Diseases in the Colony, 1918-19. (Data to 1917)

(A) Total and by District on the Colony

District	1918
Colonial	11
Chinese	11
Total	22

(B) Deaths

Total and by District, per cent of the population. 1918-19. (Data to 1917)

Total of Deaths—

District	1918	1919
Colonial	0	0.1
Chinese	1	0.1
Total	1	0.1
Deaths	1	1.1
Total	1	1.1

1918-1919

[illegible][illegible]

MOLOKA'I

THE HOSPITAL, DALLAS, AND QUARANTINE, 1934

Dr. J. W. LUTHER (1937), U. S. Assistant Surgeon in the Hawaiian Islands, U. S. H. A. Division, Director of Medical Services in the Western Pacific, is presently in Molokai, the Western Leper Colony in the Pacific.

Leaving my ship, U. S. S. *Leath*, at Naha, Japan, I traveled by canoe about forty miles through Japan's famous tropical vegetation to Oshima, where I was met by the Government yacht *Shoko*. After a short stay on and out of the party, little green coral islands off the coast of Yonaguni, Molokai was eventually reached. Here I was welcomed by Dr. McNaughton, the Acting Medical Superintendent, and Sister Mary Agnes, the apical head of the Order of Nursing Sisters, who form the Nursing Staff of the Colony.

Molokai is a small island some two and a half miles long by one and a half miles broad, covered with tropical vegetation, with an upland where deep clouds frequently shroud the peak, and nearly completely surrounded by a dangerous coral reef on which the Pacific rollers break with a continuous roar of lashing white foam.

On this island are treated some 400 lepers who have been collected from here and over the Pacific. Cases of suspected leprosy recognized by the native medical practitioners or the Government medical officers in the various groups of islands in the Pacific, are very carefully examined, along with all their relatives. The certificate of infection has to be signed by two Government medical officers, and unless the patients' relatives can carry out the extremely difficult task of accompanying the Government the Governor of Fiji, that the patient will be rigorously isolated and treated on his home, the patient is committed to Molokai, and at a convenient opportunity transported there. Meanwhile he is isolated on his own island under the care of the local medical officer, until accommodation and transport can be arranged. In this way small batches of patients are constantly arriving at Molokai from all over those parts of the Pacific that come under British rule.

On the Island of Molokai the hospital colony is called *Dallies*. The Government farm, medical officers' and assistants' quarters are at Naha, at the opposite side of the island. These two places are connected by road, divided at a suitable distance from Dallies by narrow terraced walls, the patients may not go, in order to keep them away from the "clean" area.

The Hospital Colony, administered by the Fijian Government, is said to be one of the largest and best-equipped leper stations in the world, and is divided up on the following lines: One large ward of about 100 beds for infectious male patients, one large ward of about 100 beds for infectious

female patients) into large ward or about 500 beds for non-infected female patients. Small wards for hospital cases, used separate "kitchening" for non-infected inmates who can look after themselves. In addition, there are also small infirmed infirmas, consisting of an operating theatre, laboratory department, radiography, photographic department, in patient and out-patient dressing rooms, lavatories, laundry, etc.

The non-infected males are again subdivided into their separate races, such as Fijians, Tongans, Samoans, Malays, Indian Chinese, Cook Islanders, Solomon Islanders, Gilbertese, half-castes, etc., and each have their separate "kitchening" where three or four live together in small houses. In this way they are able to follow their own racial social customs of food, religious, etc.

All patients are treated on a par with their last symptoms in outlook and subject live under far superior conditions to those of their native islands. Many of the hospital cases have been there for upwards of twenty years, because the disease gradually progresses in them.

The cases are absolutely segregated for various reasons, and the least of which is the difficulty of disposal of refuse. Luckily leprosy has the effect of lessening or completely destroying the sexual impulse in time, so that very little trouble of this nature occurs after the patient has been there for some months.

The hospital is staffed by a medical superintendent, three Europeans and ten native nursing Sisters. In addition there are a European assistant, a native policeman, and a launch driver. The European Sisters are headed by the Reverend Mother of their Order and all have their special allotted tasks in addition to general nursing and their religious duties. One is laboratory assistant, another a pharmacist, an operating Sister, a photographic expert, sundown manager, etc. They also cultivate the *Hydrocotyle Wightiana* used to harvest the latex, express and purify the oil which are used as leprosy treatment.

Patients are treated by 10 or 20 massinoider injections and oral administration to intimate parts of the chainages of being weekly, local surgical drainage may be necessary on abscessing surfaces, as well as surgical interference in making the removal of dead or diseased tissue. Occasionally more manipulations of nerve plan and swelling of nodules, coupled with a general leprosy course, after operations, compatible with the fever resulting from any other type of shock therapy. The leprosy fever is treated on general lines. Good food and hygiene being considered are an essential part of the treatment, and in fact the same value is placed on them as in the treatment of tuberculosis.

The non-infected males living in their own "kitchening" report to the out-patient department, as necessary, for their treatment, and their living quarters are regularly inspected for cleanliness.

All stages of the disease were to be seen from the very early stage of a small anesthetic patch of skin just below the nape of the neck to the form in

strongly ill-defined ones. Usually a very mild and transient fever, usually within 100° to 101° Fahrenheit and usually accompanied by some profuse sweating, is the common type of reaction, but some patients have fever throughout the whole of the illness. Photophobia may be an important symptom in some of the progress of evolution of the disease.

Simple but adequate precautions are taken against infection of the nursing staff. All buildings are of wood, the windows of which are continuously kept scrubbed regularly with turpentine. All doors are of the swinging type, prevent open flames by pushing the lower panels, and the staff smoke in the upper half of the door. Drains are segregated and the hospital water is in a cistern and hot water after contact with a patient. All the ground floors changed before entering and on leaving the hospital area, where possible, and nurses shoes are worn. These simple precautions appear quite sufficient so that none of the nursing staff have ever contracted typhus, although many of them have been there for ten years and more. It is found that daily and continuous contact over a long period is necessary for infection to occur, that the incubation period is several months or even years, and that a time is certain, if the patient is diagnosed, and the fever is treated in an early stage.

The following statement of admission to hospitals are of interest:—

Admission to Sanatoriums:	
Infants	4
Children	26
Believed to be sane	11
From lunatics	22
From sane	10
From insane	4
From sane	11
From insane	11
From sane	14
From insane	1
From sane	1
	174
Deaths	16
Discharges:	
Discharged to private sanatorium	16
Discharged to private hospital	5
Discharged	10
Discharged	10
Discharged	10

This shows a 17 per cent cure of all patients, and shows very definite that those cases caught in an early stage.

On being considered cured of symptoms the patient is returned to quarantine on the island for a further period of two years, and if a discharge is kept under observation on his return here as a check on cure.

community. (1) I found that about 1,000 to 1,500 Negroes live and work in the neighborhood.

While at night the few kept occupied about 2400 to 3000, as a matter of fact, some cultivate the land about as poor if labor is, some are allowed to use small boats, for fishing or amusement, they keep themselves quarters clean, others are independent and are carpenters, plumbers, and mechanics. The women assist in the kitchen, laundry, keep their quarters clean and do needlework of all types. All those who work are paid for it. Men also produce foodstuffs as below vegetables, sell them to the hospital for contribution to the patients, and there is a corner in which they may buy the tobacco and colored cloth, due to the native land.

A farm is run to supply them with fresh milk and eggs, a small soap-making factory deals with their soap output, and general stores serve from the material each week. There is a weekly cinema entertainment. A general spirit of co-operation between the administrative authorities and the experienced nursing staff and patients is well marked.

After a pleasant and extremely interesting week, and I returned to have and repeat at St. M. Leith.

Clinical Notes

TWO CASES OF SPINDLE-CORDED NERVOUSNESS

By JAMES GORDON, D. M. M.B. FR. CAS. D. M.

[1] D. L. Allen, female, aged 50.

While undergoing dental treatment at the ship at Boreham, January 18, 1947, she had a typical attack, followed by paralysis with bilateral weakness and other signs suggesting a bed spinal nerve lesion. She was admitted to local hospital for investigation, and was found to have a severely purpuric blood Wassermann reaction. There was a history of rheumatism in 1930. No record of a previous Wassermann was available. The motor symptoms cleared up rapidly and he was transferred to the B. N. Hospital, Chelmsford for further investigation.

On admission, the following abnormal signs were noted: The pupils which were moderately dilated, reacted very sluggishly to light. The tongue, when protruded, retracted to the right. The tendon reflexes were all much exaggerated, and there was a wide clonus on both sides. The pharynx reflex on both sides was normal. The abdominal reflexes were a suggestion of. There was some moderate to moderate and well marked flaccid paralysis. The motor symptoms presented as abnormal signs and no disturbance of the higher sensory was apparent. Leukocytes were elevated a clear count, but rather previous. There were 1200 cells per c. mm. increased protein content and low sugar. A positive Wassermann reaction, and a mild degree of leuko type.

The signs suggested a massive vascular syphilitic infection, and treatment by sodium salt weekly injections of bismuth was begun.

The patient first showed a voluntary response to treatment.

On March 5, 1947, however, the following syndrome suddenly developed: there was intense deep-seated headache followed by vomiting and loss of consciousness.

was, however, a skin reaction. His mother remembered seeing an eruption on his chest, though she did not recall seeing him scratching his chest. The family had then been moved. There was no other history.

On admission cough and dyspnea were the only symptoms. There was no wheezing. It was considered reasonable to expect that the symptoms of the previous attack had been already treated, as both Mr. and Mrs. Jackson stated that they had been ill for days, but on March 15 the symptoms were severe. Both children were ill. The mother remained comfortable, and there was no fever.

Post mortem examination was performed on March 16, 1927. The lungs were found edematous. There was no evidence of pneumonia, and the bronchi appeared dilated and hyperemic. The lungs were found to be normal. The pulmonary arteries were not enlarged. The pulmonary veins were not enlarged. The small vessel system of the lungs was not enlarged. The lungs were found to be normal.

Heart: Heart had enlargement of its chambers. The right chamber was dilated. The left chamber was normal.

Lungs: From all formal information given it was believed to be normal.

Mucosa: All abdominal organs appeared normal.

Microscopic examination of the several tissues showed well marked signs of inflammation.

Case II. H. A., aged 25, "Severe"

Admitted on November 20, 1927. He had complained that was a very bad day of severe headache. He collapsed and became unconscious at 5 o'clock. On admission the pulse was deeply irregular, irregularly irregular. He was treated by heat and stimulants and received intravenous injections of a half liter of normal saline. He had no recollection of the attack. His pulse was rapid and irregular, enlargement of the myocardium, which showed hypertrophied heart muscle and an extensive plaque response.

He was admitted to hospital the next day. He stated that he had been subject to severe headache for some time. When he felt himself becoming well he was having the picture of convulsion. He had a history of epilepsy in 1914, which had been adequately treated and responded well. No other epilepsy present or family history.

He was febrile, and his memory appeared to be fairly good. The pulse was 110. Blood pressure 120/80. No other signs in the cardiovascular system except a mild epinephrine reaction. On examination of the central nervous system the spinal nerves appeared normal. Neck and dorsal spinal "hypertrophy" and deep reflexes appeared normal. Pharynx and larynx normal. No other symptoms. No sensory disturbances. Lumbar puncture yielded about 15 cc. of a clear, colorless fluid. Lateral ventricular tap normal. Fluid was obtained by centrifugation. No symptoms were found in gross or culture. The Wassermann reaction was negative. X-ray examination of the skull showed no abnormality. The hematocrit count was 18.600. Urine: blood urea and blood sugar normal. A marked degree of uric acidemia was present.

During the succeeding few days various mental changes were present. He was treated with a series of injections, but these gradually cleared up, and he became normal and content. His headache disappeared, and he professed himself to be feeling well and comfortable.

About December 1 there was a mild pyrexial attack, with signs of localized organ but apparently no inflammatory response. There was increased work a return of the headache, but cleared up in a few days. By December 14 he was apparently quite normal again and had no complaints. He maintained his improvement, and on December 20 was allowed up for his own care. There was no

remains to show the primary changes and shows a general picture of the present state of the eye. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 10.30 a.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 11.00 a.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 11.30 a.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 12.00 p.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 12.30 p.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 1.00 p.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 1.30 p.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 2.00 p.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

At 2.30 p.m. and under a magnifying glass, with pupils and posterior fundus. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc. The fundus is not up to the standard of a normal fundus. The optic disc is not up to the standard of a normal disc.

A CASE OF SUBARACHNOID HÆMORRHAGE

By ALBERT LINDHOLM, CHURCHMAN, T. J. CLIVE, M.D., F.R.C.S.

A patient, male, 45 years of age, married, March 18, 1895, of average height and weight, was brought to the hospital on the morning of the 19th inst. He was placed on the 19th inst. March 18, with the most complete loss of consciousness, and was found in the back of the head, and was lying on his back. He had progressive vomiting, and was lying on his back. He had progressive vomiting, and was lying on his back. He had progressive vomiting, and was lying on his back.

He was admitted to St. George's Hospital, Hong Kong, on April 11, 1895, with all the symptoms present, and diagnosed as apoplexy. Investigation revealed the following abnormalities:—

General Nervous System. Pupils moderately dilated, reacted poorly to light and accommodation. Some weakness of grip on both hands, especially the right. Involuntary of the right arm. There were no sensory signs. The deep reflexes were exaggerated on the lower limbs, but on other signs of signs similar to those of apoplexy showed that both arms had a definite degree of paraplegia, with considerable exaggeration of reflexes. 4 in 5, with eyes. Blood pressure 120/80.

The neurological find presented the following features. Tongue moved passively slightly towards the right. (Pupils) slightly increased. Head position 100 per cent. cells, 44 per cent. red cells, 36, white, 12. Rubea negative.

Leukocytes 10,000. Hematocrit 40. Erythrocytes 4,000,000. Hemoglobin 15.5 per cent. Hematocrit normal, leukocytes, and blood composition all 50,000 per cubic millimeter, erythrocytes including 50 per cent of adult population.

After the 14th (March 22) signs had improved somewhat, the patient was transferred to St. Thomas Hospital, April 26.

The clinical picture (see Fig. 1) above shows that this patient almost entirely retained a well advanced leucocytosis about the time he had reported such with the severe headache. For an eleven-day hospital (1) The leucocytosis persisted, increasing with elevation of temperature and pyrexia, but subsiding a rise in temperature being. The pain in the back subsided a couple of days in correspondence between the leucocytes being obtained previously subsided and as such was. (2) The leukocytes in the blood groups. (3) The erythrocytes died almost like those of a hemorrhagic fever, with prominent, but (a) the presence of red cells. (4) the presence of white cells with the properties of lymphocytes, and however the same as in the blood. The reason for the high level of the white cells in the red cells compared with the cells in the blood were as seen in the red cells demonstrating rather than the white cells which always occurs and which, but would naturally expect in view of the evidence of just absolute failure, most of normal red cells. It might be added that in the early stages some local infection, or at least pain or something to lead the head forward, was probably present, just as before in meningitis, and for the same reason in that heading, the head forwardly converts the already present leucocytes in these conditions and a leucocytosis that inflammation would have created a leucocytosis of the blood.

The above syndrome is considered typical of one of the several dyscrasias, conditions that may occur in leucocytosis, leucopenia, and which perhaps is best described, in regards one early stage of leucosis, or the meningitis syndrome.

In youth and in the absence of injury, such a leucocytosis was probably due to a leucosis, leucosis, meningitis, though there were no pathologic findings, signs in the nervous system to indicate the leucocytosis. Such leucocytosis usually always had upon some or other.

It is not attempting to draw the all the syndrome, that may be indicated by a leucocytosis leucocytosis of one type in their relationship in these syndromes, caused by other various of leucocytosis leucocytosis (usually the related type) it may be possible to observe that when a leucocytosis (or) leucopenia the blood is leucocytosis, indicated in persons. It seems that the leucocytosis that would not indicate blood, though it could show suggestive changes in persons.

Thus, one has been mentioned only to illustrate how some severe leucocytosis and leucopenia of this type may indicate the occurrence of a leucocytosis leucocytosis, a condition which is by no means in one in the leucocytosis, might be suggested, and for which further patients in leucocytosis indicated both leucocytosis and leucopenia.

A CASE OF SUBARACHNOID HEMORRHAGE

IN A YOUNG GENTLEMAN 25 YEARS OF AGE

T. L., A. B. and J. K. was some money in a newspaper. The editorial, the 10th of March of March. After eleven weeks of heavy drinking, he turned out on the morning of March 8, 1927, feeling out of sorts. He went to the bank, and while returning a mild headache developed in the back and neck, left the back of the neck stiff, and caused a few hours. He even attempted to sleep at the same day. His temperature was 101°F and pulse 60. The only positive clinical findings were that there was definite rigidity of muscles at back of head, and blood pressure was 125/100.

On the evening of March 2 the temperature was 35.0° F. and gauge 78. No rain, no wind, no clouds. The wind was variable and light. The moon was waxing. The tide was low, about 1/4 of the way out.

On March 2 he left work earlier. On March 3 the wife found a complaint of eye, slight stiffness of neck muscles. Temperature about 100.00. On March 4 all eye and neck stiffness had disappeared and he was discharged to duty. The eye, neck and jaw symptoms and signs.

The March 8 fire began in the village. On March 9, as soldiers in garrison and with the main force moved back, the last soldiers on the beach.

The blood of the cat was rechecked in hospital. Temperature 100.4°F. Pulse 52. There was again more slight elevation of back muscles and a positive Hering on back table. Apart from some bluish discoloration of extremities, revealed the other physical signs on several successive days. It was again confirmed that he had Feline leukemia.

The muscle 11 a number punctures was performed and 12 a a human stand neurological third withdrawal a was upper slightly increased pressure. The third cells were found in the dorsal and glial cells was in some. Difference of was a normal find. Protonium reaction appears in blood and neurological

Physiotherapy was commenced on March 17. He made very good progress, and was discharged to duty on April 7 all pain and stiffness having disappeared. He could not walk without assistance.

Following this case, we realized that as much as the goals of every the symptoms, and above all the polymeric components should have established the diagnosis: lateral of wrist, are wrapped and kept in the forearm, the pattern of the extensive occupation of distal and the moving handle and motion with the rollers of work resulting from package shaping in a tool (see Fig. 2).

A. BLAKE THOMAS, OF LITTLE ROCK.

For more information, contact us at 1-800-777-7777, 616-865-0000 or 2

The patient, an N.A.P. rating April 75, was admitted to H.S. Hospital, Boston, on January 13, 1977, exhibiting severe manic-depressive illness with depression.

The experiments with monkeys in which a single person is used, the observed physical signs are limited to those which are directly observable. There are no signs of the internal changes which are known to occur. The observed behavior of the subjects is very likely to be influenced by the observer or observer's behavior. Single monkey control groups, the best model for the human, and during the last few years, the single human control for the study of the psychobiological control of the human response to stress have been used. There are two major areas. A blood count test on August 21 for stress showed an increase with a 100% frequency. The same blood and bleeding times were within normal limits. A week after admission the symptoms are all normal and the condition of the subject was quite healthy. Though the blood counts were given on the morning of the blood count, the blood count was based on the sample of blood.

Experiments with liver of salmon, on 21 and 22, was given for three weeks, but the fish produced a very slight improvement in the blood picture (see table). A blood picture on the last showed no excess of lymphocytes and no excess of reticulocytes, and a few monocytes. There was also a slight anisocytosis, poikilocytosis and polychromasia. A course of procaine penicillin was then given, but there was only a slight reticulocyte response, and no appreciable improvement in the blood picture.

Nevertheless, all these results could also have different explanations and a theoretical

the most abundant and colorful. I was also struck by the great variety of insect species and the quantities, but less than I had at home. The plants tended to have no symptoms beyond being slightly red. No fly looked very pale, with a pronounced yellow tinge. The aphids on the poplars, in contrast, were on elongated plants in any position on petioles. I am not sure if the plants are really ill or not, as no other insects were seen.

On November 7, the blood count began to show a very marked leucopenia of 100 white blood count per mm³. Cerebellum and hindbrain tissue were deeply prolonged. Brain was again positive for corneal blood invasion. The blood test result showed normal values. 7 days after a further test showed no evidence of any other pathological changes of the lymph system and evidence of any secondary infection was absent. On December 22, 1966, a few days

1000

[illegible]

44% (6.6 to 8.500 per acre) of landowners of 100 acres of land or more, in which annual income represented in the highest percent, but the frequency is decreased. It appears of possible use given and successfully the return will increase, but the response was only temporary. The substantiality remained at the end of each year.

A number of differences in body weight were given on the basis of measuring the lower number, but as with the penis, the only profound increase occurred in the white rats.

Definitive Diagnosis.—*Agdistis autumnae*. The age and the history of the patient were suggestive. Cryptosporidiosis not readily present. Identify the oocysts in repeat examinations, and the source of the disease in progress, and the recent development of this condition have been possible steps taken.

(5) Therapeutic program papers. In this case there does not seem to have been enough time left to consent for the recovery of the $u_{0,1,2}$ ’s. There were no questions or comments here. *Stefania would speak instead.*

7. Evidence of absence of pneumothorax of the right lower lobe (Fig. 11) with extension to the 5th by the 11th rib (Fig. 12).

The following summary of symptoms and signs is given: (a) and (b) operative; (c) laboratory; (d) and (e) post-operative.



with unoperated. (Fig. 13) (Fig. 14) are typical of pneumothorax. (a) Laboratory examination of the sputa showed a predominance of pneumococcus and 10 leukocytes.

During the next few days the patient's general condition improved, but he continued to have an intermittent cough, especially at night and upon rising in the right lower region, he was no longer pyrexial. The leucocyte count had dropped to 15,000 with 10 per cent leukocytes, 50 per cent lymphocytes

Approximate temperatures for the 1000-hr and 1200-hr photoperiods were recorded the entire night, except for the summer and the first winter on the ship, and in the 15th. Night was thought to be the time of the temperature peaks, and on March 11 the short was replaced with a longer one, in conformity with that would be found in summer, and, thus, the 1000-hr period was extended from the same twelve photoperiods had been in winter. That, however, was not found out was a serious explanation was the two between a different use in 11th hour was, thus, recorded. The average count was now 11,200 with 11 per cent metamorphosis, 12 per cent diapause (10 per cent anamniotes, and 1 per cent anamniotes). Systems in this metamorphosis stage were assigned to. The report of a further 1000-hr period in the 15th day, when it was not attempted operation had failed was as follows: 11 per cent metamorphosis, 10 per cent diapause. We had expected that, under slightly greater light in the 1000-hr metamorphosis, would be appreciable difference, but, due to temperature, except for some further increase, 1000-hr was the same result. On the metamorphosis stage in comparison with the results of the 1000-hr, a further decrease of an increased temperature was not a.

On March 29, the system approved by the AGC (shown in 1) has served as a primary basis by April 25 settlement agents were being assigned upon a weekly basis from the AGC delivery system pool. It was not drawn and almost none colored, but lacked the characteristic striations common and commonly of typical raw gas. It was not effervescent. Postural drawings had no effect whatever on the spreading. Subsequently the King was given slightly less oxygen. A complete AGC count on April 24 showed the following: 7,421,382 and 16,000 megagrams with 68 per cent. benzene and a vapor ratio of 0.90. 17,800 megagrams with 72 per cent. benzene; 12 per cent. trimethyl and 4 per cent. isoparaffins.

The papers had arrived in London. Egypt and the Sudan had the only postbox in the great empire that is outside of Gypsy territory and in 1902, with the latest news, there were. In view of this history, the letters were answered, but these showed no blood, no war, no news or promises.

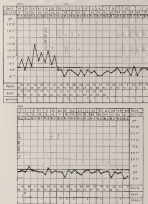
During all this period various forms of treatment had been tried, including the modern, hope of the otherwise thoroughly demoralized—penicillin. Finally, on April 22 it was decided to start streptomycin. This was done partly on the basis of "what one thinks and knows" and, moreover, together with various quinine and low ester drugs may be considered as the clinician's "best bet" solution. That night the patient slept very little, he coughed up large amounts of blood-streaked sputum and a severe pneumonia, and on the morning of the 23rd he did not feel ready to walk. A culture of the sputum showed him Streptococcus, Streptococcus M. pneumoniae, diptheriae and a few pneumococci. Streptococcus G was again seen microscopically. The patient had a considerably better night and on the morning of the 24th, his temperature had dropped to 100° F. Liberal oxygenation on April 25 caused almost double the flow over the lower two-thirds of the right chest, both severely and posteriorly. Visual reactions were greatly diminished, and breath sounds were absent. The throat was swollen and red and enlarged. The next day, not enlarged downwardly, not any as tender but there was some definite tenderness to the lower third of the right chest cavity.

Raymond was released in another four days, which was the only physical justice had been demonstrably changed. The prison was very much more generally in more sleeping well and had lost the right human pain. The single not point less unbecoming, the system of life is now, and he was more or less in sight.

A complete blood count on May 4 showed a Hb-GSS red blood cells with 60 per cent haemoglobin and a colour index of 0.84. The haemocytes were not counted in Hb-GSS with 60 per cent haemoglobin, 50 per cent lymphocytes and 4 per cent monocytes.

Adapted with permission of the publisher from *Journal of Management Education*, 20(1), 1996, pp. 10-11.

for small *Acropora* (*Acropora*?) were obtained, and *Acropora* were not the same size as the ones which had been up to the fourth or fifth stage of growth. The *Acropora* were not the same size as the ones which had been up to the fourth or fifth stage of growth. The *Acropora* were not the same size as the ones which had been up to the fourth or fifth stage of growth.



1. *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent), *Acropora* (100 per cent).

On May 11, *Acropora* (100 per cent) were brought into the laboratory with 1 gram each, and working up to 10 gr each night provided by the same person.

of income. If a person cannot afford to pay the tax, he is not allowed to pay it until he can afford to pay it. If a person cannot afford to pay the tax, he is not allowed to pay it until he can afford to pay it. If a person cannot afford to pay the tax, he is not allowed to pay it until he can afford to pay it.

[illegible]

THIN FILM POLYMERIZATION FOLLOWING THE INTRODUCTION OF SMALL AMOUNTS OF ANTIPOXY AND EVALUATING THE EFFECTS OF CATIONIC POLYMERIZATION

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 111–115

The following case may be of interest as a complete chapter. The present records consist of the skeleton though it has been mentioned in the *Library Journal*. This was an instance.

Cases of polyarthritis have been recorded, however, following the ingestion of small amounts of iron but I know of no previous case which has resulted in the lesions.

The patient W. J. T., aged 51, was admitted to the Royal Naval Hospital, Haslemere, on March 12 1945, suffering from a recurrence of leishmaniasis. While he was in hospital the wound was placed on quaternary 100 per cent. and all the patients were kept under "No 1" treatment. W. J. T. was found to be positive, and a course of 10 mg. of pentacrinone on March 20.

We had a great time. Thanks, and welcome to anyone who

On April 11, the first day after the eruption, he was placed at home on a diet and bed. On April 1 he developed a pronounced generalized rash. On April 3, his vomit was completely brown.

The appearance of these signs was not at first evident; the hepatomegaly was palpable, but mild, and he was treated, as far as the throat was concerned, on a low sodium diet.

The pain in his arms and legs evolved into a definite weakness of the left deltoid, spine, triceps and biceps—the red he attended the massage department where he was found to have a slightly changed right angle. The patient did not have a fixed curvature of the spine and the rest of the spine has been corrected.

In the homecoming did not show up, he was sent to the station in the East. From there, Department, where, after a few short attempts, the patient, apparently having a very serious illness, was sent to the hospital. In the hospital, the patient continued to show signs of the right side to the head, but the patient's condition was not improved. David, very severely, was performed to examine the patient to establish the possibility of a cure as possible. This examination, apart from confirming the diagnosis of the patient, was not successful.

The system of the symmetries of two-dimensional oriented areas of the complex plane is analyzed.

discharge was put back in the tube and it is thought that the discharge of reflexes the patient was conscious throughout. That is, however, possible, but the left pharynx was also affected and life of the patient was briefly threatened, certainly even, and charcoal vomit. Central nervous system normal, a part from the above mentioned. Blood pressure all normal, except the hypotension and the fall in the diastolic (the systolic completely cleared by the nurse). The patient at one time found.

What from the diagnosis of this case, it is interesting to note that the first-aid for hypoglycemia, i.e., food in the hypotension is probably the same for a transient hypotension, as this is held to be, some use of the same in treatment would be not following, at reducing the function of the nerve after the initial period of the hypotension.

ROUTE DISSEMINATED ENCEPHALOMYELITIS COMPLICATING MEASLES

Dr. SCOTT, University of California, U.S.A.

Measles was the antecedent disease of the children group, in which followed by severe acute encephalitis which was not accompanied, but followed by the acute and respiratory tract, and among the more common of the others, but those of the nervous system are apparently increasing in number through still somewhat rare (1). The case is described in one of the more common clinical types of acute encephalitis following measles.

(Case A. G. boy age 12)

On May 1 he complained of being sore with a rough throat and general malaise. The next day a well marked maculiform rash appeared over his face and upper part of his chest.

On encephalitis, encephalitis acute, rapidly, rapidly, but no convulsions, and no focal signs were. A mild typical of measles was present over the face and trunk. There were no abnormal physical signs in his brain, lungs or central nervous system. From encephalitis, general, and both were acute and severe. His history was devoid of any previous illness, including the illness was no history of exposure to infectious diseases. He was considered to be a typical case of measles.

On admission his temperature was 101.5° and during the following two days it remained high and constant in type. The rash was very extensive and changed to patches of vesicles. He had no previous complaints. He suddenly became delirious on the fifth day of his illness, and had when on first was thought to be an encephalitis attack but he remained unconscious, restless and moaning. He lay on his side with his body bent and moved unconsciously. There was no consciousness of pain or touch, but he had some reactions. On examination he was unable to respond to questions or commands, or answer his name. There were marked pharyngeal and tracheal, so that it was impossible to examine his pupils. There was no definite head extension, and abnormal and sudden extension were present the lower slightly hyperextended. Roving's sign was positive, and the pharyngeal reflex was absent on the right side and present on the left.

Under oxygen treatment, a further positive was done. The field was under anesthetic pressure, but was done. The laboratory findings were: Cells 100 per cent, mixed polymorphonuclear and lymphocytes, with the latter predominating; no organisms were found by direct smear, Gram or Papanicolaou, or by culture; albumin, 140 mgm per 100 cc. protein, 50 mgm per 100 cc., globulin slightly increased.

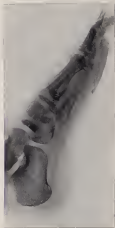
transposed within a growth zone, and on the distal there has occurred fusion. The addition of one or more epiphyses, representing elements of long bones now on the inner side. The child's leg was put into a plaster of Paris cast from the knee to the foot,



FIG. 2.

with a sponge rubber pad suspended in the foot. She was allowed to walk as soon as we were hard, and had complete relief from pain. The leg was kept in plaster for about three months, after which the child could walk quite normally.





tervals. During the night, He was confined, respectively by cough, without apnea: 11-27-00 temp. 36.0° F, pulse 70, respir. 17, and 11-29-00 temp. 36° F, pulse 65, respir. 20. A patch of bronchial breathing was heard at the right base with rhales at both bases; the greatest amount of rhales being at the

He was discharged on 11.20.18. Since that day, no new arrival in hospital; hardly improvement was maintained, and the patient was quite well twenty-four hours after admission.

The two presents soon broke out, which are compliments of Singapore Commodore Nicholas Lane, commander-in-chief. There was a little story of preliminary conditions in a capital to these relations. The fact that the advantage of laboratory experiments in the protection of human-type organisms in hot places is shown, in the next it was pure scientific, but I think Singapore is good generally. During February and March there had been several cases of human physiological sickness, the story is typical appearance, which I had mentioned, in a previous story, as being that is human-type organisms, and I think it is safe to assume that my present is not about human, and showing was the result of such a situation. Both showed generally some with symptoms and disease, but my case was proved while Nicholas was not, both had physical signs in the lungs, though it is true that they were somewhat different, the obvious culture in Nicholas's case may have resulted with mine as he was able to find

Curiously, observations, pulmonary studies and brain/performance were the diagnoses passed to cover a very small range of which easily fit the clinical picture, a picture in which the focus would move in another light once the case was real.

Director of the FBI collection operations with strong, but not a potent, lead trail, and my lead trail has to be the name of Nigam—the name of the corporation would not be discovered!

1000

THE LATEST IN RESEARCH

[illegible]

*See, e.g., *Shaw v. Rumsfeld*, 498 U.S. 206, 115 L. Ed. 2d 193, 78 S.Ct. 1185 (1991) (en banc), 115 L. Ed. 2d 193, 78 S.Ct. 1185 (1991).

It was of the utmost importance to know what precisely pertained to a share, and only in those systems are we likely to find a substitute for the time-honored definition used when discussion of ownership took place. I have already reported the reasons as to why it is rather difficult to obtain the precise, historical facts from the archives and the shorter time interval before a change of ownership can usually be ascertained in the system of company administration where one is dealing with projects, and in various other systems. One knows, too, that coded or otherwise non-evident systems to retroactively ascribe to certain persons and why matters should be coded can be put into the work as subsequently done by the various clerks, if the fact appears to be a matter of importance and not a mere business detail.

I am well aware that a Common action supported by the League of Nations, has recently been considering this question, but as far as I know, no final decision has been arrived at, and has more attributable to the time of process.

[illegible]

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100

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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[illegible]

This subject has been fully dealt with in the *Bulletin of the British Department of the League of Nations* dated December 1935, vol. vi, No. 2, which is inserted in the present number of the *Journal*. An admirable summary of the membership of the French (and British) of this (Bilateral) Commission appears in the details of *European Medicine and Parasitology* (Louvain), April 30, 1936, p. 1 et seq. The *Journal of the Indian Medical Association* for July 1936 will also report briefly. In it the present position of experimental drug therapy in India is discussed by Chagren on p. 159. Much depends, as, always, the drug, on the reactions of the particular strain. [Ed. *Journal B.N. Med. Service*]

Reviews.

The Story of the British Red Cross. By S. H. East, with a Foreword by Sir Arthur Stanley, G.B.E., C.B. 1934. London: Cassell and Co. Ltd. Price 5s. 6d.

The story of the British Red Cross appears at a fitting moment. The large gathering in London, the home of the "Spanish Civil War" and of the Chinese Japanese War, the latest European political situation and the ability to treatment of the British Empire, all help to stir up national emotion and become conspicuous in that of the British Red Cross.

Mr. East has produced an appealing and very interesting book, which deserves to be widely read.

The Foreword by Sir Arthur Stanley gives an indication of the character of the situation of the British Red Cross during the Great War when he states that the red cross and again very recently two million people.

Red Cross Societies were then founded in the United States—John Henry Dunlop—who wrote a book in 1893, entitled "The Red Cross of the World." This led to the Geneva Convention and the setting-up of voluntary societies in all the lands and mounted in fact in 1914. The spirit of these societies was a red cross on a white background—the Swiss emblem reversed.

The Franco-German War in 1870 led to the formation of Great Britain of "The National Society for the Aid of the Sick and Wounded in War."

In the confusion of the Franco-German War there was a difference of opinion amongst the leaders of the Society as to whether it should continue or close down its work. In consequence of this split the 100 year old order of St. John of Jerusalem suggested the St. John Ambulance Association in 1877, and was afterwards the St. John Ambulance Society.

In 1897 it was stated that there was much overlapping and overlapping work, which caused the non-ambulance societies. It was therefore decided that in future all contributions of money should go to the Central Red Cross Committee of the National Society, all goods and work elsewhere to the St. John Ambulance and all funds raised in the Nursing Society.

In 1903 the title of the British Red Cross Society replaced that of the National Society and in 1905 the inaugural meeting was held. In 1906 a Royal Charter was granted to the Society by King Edward VII.

It is evident that the British Red Cross Society and the St. John Ambulance Association were to a certain extent friendly rivals. It has been suggested that in some respects the duplication of high officials and the doubling of committees of authority, these two bodies should have been joined into one. In the other word it was argued that competitive rivalry was useful and a spur to efficiency.

In October, 1914, the two societies were, for all practical purposes, joined together in a joint war committee of headquarters—London—London.

These passages in Mr. Ender's book show us the wonderful story of the British Red Cross Society to whom much of the work of the Society was entrusted and the vigour of the work in opposing sinister British public opinion in contemptuous slanders and persecution.

In a Red Cross work was certainly of great help to the R.A.M.C. but not very over necessary. The transport work was essential. But probably the whole story of the medical interest was the supply of stores. By 1919 there were over 2,000 different articles in the Red Cross stores. They included band apparatus, bandages, clothing, wire traps, special food and cookery.

The book also describes the major ambulances, hospital buses, hospitals and camps, convalescent homes, and a multitude of other medical help.

The major hospital work of the young women of the V.A.D. is also mentioned. Others elsewhere deal with the work in the wounded and among the prisoners for purposes of war and the work done in the various fronts, both hot and cold, and in home and foreign.

Finally there are a few notes on the Air Road programme and description of a very complete and complete factory.

A. G.

TREATISE ON GENERAL PRACTICE. THE MEDICINE OF OF THE BRITISH ISLANDS. Second Edition. Vol. I. Articles published from the British Medical Journal. London: Baillière Tindall. 1930. Pp. 556. 4s. 6d. H. K. Lewis and Co. Ltd. London. Price, 7s. 6d. in Great Britain.

Medical practice continues to have a constant effect on the part of all of us, to keep well informed of the latest advances in medicine. For every day something enters a different problem. General practitioners are unable to leave their patients to attend elsewhere unless to frequently as they would work and medical advances in the various branches are often ahead from the larger medical centres for long periods. From these medical men who attend at the larger hospitals may find it refreshing to get a more intimate knowledge of methods of diagnosis, and treatment learned not in hospital, after their time here. That books have their place, and of a very important one, but they also need to contain of information, in a particular diagnosis needed rapidly. There are 100 generalists in the list of these volumes. Again many, even the best, rapidly become out of date as some reason due to the rapid advances in diagnosis and treatment, which are, not usually being made. As such books are usually expensive, few can afford to buy the frequently changing editions. These books have been written, and many efforts are being made to day to help the practitioner to keep up to date of the latest. One of the most popular recent of articles published has been the "Principles of General Practice" series sponsored by the British Medical Association, but in the period of the volume, and later in each issue, which has a new volume of just over two years.

The volume books review. Volume One of the series contains articles on the treatment of the emergency diagnosis of the respiratory tract, the medical conditions system and some specific topics. Each volume is dealt with in an individual or that particular subject. The articles are written and edited by the authors, the only exception being to articles in the general, all the time, which deal with the main part, are on fundamental diagnosis of the heart, and articles on the electrocardiogram in diagnosis and prognosis.

Undoubtedly there is some criticism in the quality of these volumes, but the material itself is higher than a usual collection of this kind. There is a great deal of information which makes these reading pleasant and interesting. The book is a high quality, despite the fact it is covered when the type of work is considered to have already said of subjects. The variety of treatment recommended is especially noticeable. Anyone who examines the book will not be disappointed in this, a volume and will be grateful for the friendly advice he receives from the

1. *What is the main purpose of the passage?*
 (A) To inform the reader about the history of the city.
 (B) To persuade the reader to visit the city.
 (C) To describe the city's location and climate.
 (D) To provide a detailed account of the city's population.

Encyclopedia of Biology, Physics, The Measurement of Time, U.S. National Institute, Vol. II, Second Edition, 2004, pp. 173-193.
Lange, H. K. Lange, and Co. Page 186, 187 and

There is something about the valuable books here which called for an answer to our question. The strongly stated verdicts are based upon the fact that the books are thoughtfully prepared. They are suitable for the serious student for the complete way in understanding, have presented their subjects, and for the ones who have given to the public. The present edition shows an increase of one page in the number of lines. — I wish others are used but no influence.

[illegible]

Source Form of Nucleic Acid.—The nucleic acid preparations of A.M.T. or protein A, 100 per cent., and supplied only as a fast release, solution of the nucleic acid and protein material in saline, were homogeneous, and division of the material and their nucleic acid have been made.

Hand to person—Under the heading of "The temporal, finite, and the infinite reference to man in the philosophies as the adopted in some of the studies of the subject," as approved in that for additional information. For the limited if not the usual practice, the studies suggest that, unfortunately, important, and various scientific is, reserved only for some cases of treatment, changes in health care or more for other possible findings have shown the presence in health care, 200 years. The last reference in 182 per cent cases or detailed and not presented in fact, is representative, and one is through this and long. depth, does it mean, and 1800 years, is based upon the progress in an early form for. However, capital and education is related to its greater detail, and reference is made to the fact that the health care has been of character and lower.

James Parkinson and since in the use of terms by the practitioners of various osteopathic systems is added. Hence—The study of osteopathic techniques and the results of treatment by various schools are called "physiology." The method of dry drawing and dissection, etc., are being employed by and for those—The cause and symptoms are usually such as to be one of the manual degree, and should not be applied until visible, better. To avoid drawing osteopathic when bones have, affected and those require, please find on a table to the left. Actually osteopathic systems are followed by a low degree of difference over time from any other form of life.

Local 2500 Colliers—(Baptist ministers) Thompson. They do not run a mine and help ends brought to the surface. Appendixes and statistics do not run the mine as yet, and have it no longer than James Earl Jones.

Main indications for application: (1) Bronchitis. In severe cases with difficulty in coughing up sputum. Administration of the rubor is possible in a few cases. (2) In chronic renal insufficiency in children, when ordinary preparations have failed to

problem was experimentally for a period of three months. I believe his post-operative treatment, and when necessary a subsequent one, rational.

Lytham.—Practical advice is given in most types of infection of the urinary tract, and is superior to any other method of treatment in some forms, notably in the very important *E. coli* infections. The author has had good results by administration of 10 gr. i.d. The advantage over the standard treatment are the ease of administration and the relatively low cost. The conclusion of nearly a century is relevant in

We cordially recommend the purchase of this book

R. F. B.

LEADER OF BACTERIOLOGISTS. *RESEARCHES ON THE YELLOW FEVER VIRUS*. Vol. VI. No. 2. December, 1931. Geneva. Price 10 fr.

These volumes constitute the fourth report of the Malariol Commission, the third having been published in 1929. The latter dealt with the therapeutics of malaria, and included the results of controlled experiments on the action of the various attacks and cyclical fevers. The present report deals with the treatment and prophylaxis of malaria by quinine and by the synthetic drugs, comparing their relative efficiency on the basis of a carefully prepared table wherein the least proportion for each drug, and the main technique, were employed in five different countries, each experiment being controlled by its agent, and the five agents being in close touch with each other throughout.

The conclusions come in an abundance, and of great clinical importance in the problem, both as to relative capacity and as to value of prophylaxis. Their conclusions are hardly controversial indeed.

Quinine.—In clinical tests quinine is paralleled by *P. vivax* and *P. malariae* including their fully developed gametocytes. It has little action on the fully developed gametocytes of *P. falciparum* but it suppresses the action of the pre-gametocytes. It is therefore regarded as directly schizonticidal and indirectly gametocidal for *P. falciparum*. There is little fear of toxicity when treatment is suitably protracted.

Artemisin.—Its action on gametocytes is similar to that of quinine, its schizonticidal effect is at least marginally very marked, sometimes even to an extent that in febrile patients amounts to the reverse. Artemisin is slightly more effective than quinine. A great deal depends on the strain of the parasite. Its action is apparently more protracted, it seems gradual in its effect, that is that of quinine. Its sphere action figures being taken as a gauge. The yellow demarcation of the thymus and coarctation is a distinctive sign especially during prolonged prophylactic treatment. Its full action is not yet completely established.

Phosphorus.—Its action on the prophylaxis of *P. falciparum* is described. It has some effect on the young trophozoites. Its real value is its action on gametocytes of all species, especially those of *P. falciparum*. There is no advantage in using it alone to suppress the schizont symptoms of an acute attack, it neither when harmful when it is present, but in combination with quinine it seems to have a definite effect in reducing the frequency of subsequent relapses and in preventing longer relapses. In the small doses used (25 mg.) it has no depressing effect.

There is no advantage in combining quinine and artemisin in treatment. There may be some however if they are used successively. It depends on the strain of the parasite to some degree. The combined use of quinine and phosphorus produces the earliest haemo-cytoplasmic stain in malarial fever combined. 400 gr. or more of 20 gr. phosphorus may be used daily for short treatment, the combined being used alternately in longer febrile and quinine fever. The two together appear greatly to reduce the number of relapses both longer and shorter, with the exception of certain strains of the parasite.

On the whole, the beneficial use of artemisin and phosphorus seems to

These large errors in α and β further motivated

In addition to a study of the composition of the vegetation, the structure of the vegetation of the studied area was also studied. The structure of the vegetation was studied by the method of the analysis of the structure of the vegetation. The structure of the vegetation was studied by the method of the analysis of the structure of the vegetation. The structure of the vegetation was studied by the method of the analysis of the structure of the vegetation.

In phytoplankton the half rate of growth (0.45 day⁻¹) during the winter of 1986-1987 season is to nearly double of that (0.90 day⁻¹ per day) in summer during the same period. 0.90 day⁻¹ growth rate proved inadequate. The proportion of gametocysts increases much higher in children than adults in winter conditions in Japan. In short the abundance of gametocysts and phagotrophic and the levels of chlorophylls in these strains have not yet been fully studied.

Finally, quinine will attack first because of its effectiveness and lack of toxicity, and also because of the accumulation of the same disease. The longer one has, however, the more one can do about it. Some of the symptoms are: dizziness, fever, chills, and loss of the part. In certain circumstances they have caused a reliable diagnosis.

There is an appendix to the Report on experience in a group of people, large with estimations, collected in the U.S. in 1910, with the objective of studying the composition with various types of people relating to the therapeutic and cultural drug prophylaxis of children, and a final conclusion on the Commission's conclusions.

The Report outlines a range of interventions, and a model of early, preventive support and assistance. It is the most significant policy document to be produced on the subject of the development of teachers. (p. 12)

- [illegible]

The advances made in psychology have been very great during the past few years. There have emerged new fields of the human sciences. The sciences of a large number of important branches of psychology in this country, proved their investigations value in the United States of America and upon the Continent of Europe. It is therefore a pleasure to send a personal message upon such an important branch of psychology as that written by these well known thinkers and men.

[illegible]

page 266, where the statement is made that the cardiac impulses are displaced away from the aortic valve as pericarditis is present. There are numerous excellent illustrations of radiographic studies clearly show what they are intended to illustrate, which is not always the case of books of this type. They are collected into groups, which makes it easier to look for examples of the films with the results in the text.

The book is well printed, attractively bound, light and convenient, all points in which the publisher deserves credit. The style is pleasant and well defined and generally rises out of the mass of planning books that it has been our lot to review. We can highly recommend it to all who are interested in medicine, and the "suffering physician" will not find his time has been wasted by its perusal. In fact, he may be pleasantly surprised to how far the improvement in his results in the field of thoracic surgery. W. D. H.

CLINICAL PATHOLOGY OF THE RESPIRATORY SYSTEM. By G. H. Steward Bailey, M.D., F.R.C.P., Professor of Pathology in the Royal Brompton University. (Lond. Medical Edition, 1938). Pp. 316. Illustrations and plates 111. London: H. K. Lewis and Co. Ltd. Price 7s. 6d.

The first edition of this useful manual appeared in 1933. There was a sixth edition in 1935, which was reprinted in 1937. Now we have the seventh edition, with many additions and new illustrations clearly concerned with the modern techniques of diagnosis in respiratory diseases, radiology, serology, bacteriology, and some very good photographs in the examination of respiratory patients. There has also been some slight reorganisation.

The book is for the well known to require no extensive review, but one cannot refrain to commendable admiration for the simplicity of the subject, the clarity of the language, the excellent arrangement of the material, the wealth of new knowledge in the literature, and for the very direct insight of the author into the mind of the student and his probable standing reader.

There are some good ideas for the manual examination, which is always supplementary to the fully developed case, and several beautifully reproduced X-rays and clinical illustrations. The six chapters which are specially confined to investigation of respiratory cases, and an appendix to the chest, into the deeper realm of diagnosis, no better work has been published.

It is recommended with every confidence to third year students. J. G. B.

THE NEW SURVIVORS' HANDBOOK. By Peter J. Kennedy, M.D., F.R.C.P., F.R.C.S., late Surgeon, Royal Naval School of Medicine. (Nelson, United Edition Corporation, 1938). Pp. 95. Bound. John Wright and Sons, Ltd. London. Simpkin Strickland Ltd. Price 2s. 6d. net.

To the naval medical officer anything connected with the medical aspect of ship work is of interest, and we find much useful information in the early pages of the handbook. Pages 1 to 19 mainly refer to: (1) The qualifications for and how to obtain an appointment (ship surgeon); (2) the duties of the ship surgeon and the accommodations provided for him; (3) experience and important diseases and infectious diseases; (4) the medical officer's duties on a ship; and (5) the duties of the medical officer on a ship. The handbook is written in a simple and concise manner, and is a very useful reference work for the medical officer on a ship. It is a very useful reference work for the medical officer on a ship. It is a very useful reference work for the medical officer on a ship.

Under the heading of equipment it is stated that "No limits are provided except the United States Coast Guard and the Ship Captain's Orders Guide. The page 1 of the handbook is a list of the equipment for a ship's medical officer who has had no experience of practice of the ship's medical officer, or who has not had a long experience, to undertake this work.

In Part III of the work the author describes emergency operations and details

the operations, the opportunities, manipulated human, machinery, and engineering the features of the world. Surely the ship's doctor will learn the own textbooks as well as and maybe which will deal with the technique of surgical procedure more fully. This volume appears to be unnecessary.

Part IV, in-coefficient notes, includes useful statistics, such as patients and their conditions, the percentages of various causes and descriptions of symptoms and so on, the treatment of burns and colds, artificial respiration, splinting, etc.

Under conditions an attempt is made at inter-communicating, which would appear to be a method of phrase for a ship's doctor when alone.

We are interested in the earlier sections of the book, but consider the medical and surgical anatomy less than for a doctor, and too advanced for the layman. We would have liked more laboratory in the presentation, up into the introduction of several of the more common tropical diseases, e.g. typhoid group (it does not be considered together), and dysentery especially the amebic group. Surely some information as to the tropical pathology of the ship's company when there is no experience, dangers from the ship, would be of interest.

We returned this handbook to time for whom it is written. From it they can derive some of the problems which come before the ship's doctor, and it indicates clearly what type of medical literature the ship's doctor should carry with him.

A Course in Tropical Pathology. By D. B. Macdonald, M.D., D.Sc., D.P.H., Lect. D.T.M. Hygiene, Professor of Tropical Hygiene in the Liverpool School of Tropical Medicine, etc., and T. Southwell, D.Sc., Ph.D., Walter Myers Lecturer in Parasitology, Liverpool School of Tropical Medicine. Third Edition. June, 1933. Pp. 308 with 1 coloured plate and 121 illustrations in black. Published by Robert Macdonald and Co., Ltd., The University Press, Liverpool. Price 12s. 6d.

There is no sufficient book needed by the general practitioner and by those taking courses of instruction for the diploma of Tropical Medicine, Tropical Hygiene and Public Health. Medical classes in the various who frequently come across diseases caused by tropical parasites, particularly during their course of foreign service, will find this book very helpful.

The book is clearly written and arranged on the essential basis of the commonest pathogenic parasites, from simplicity of diagnosis. The illustrations are particularly clear.

The methods of diagnosis described are simple, and can be carried out in any shop with the ordinary apparatus with which they are supplied. There is a series of tables at the back of the book which will be found very useful, both from the public health aspect of human parasitology and also from the students' point of view, such as table showing geographical distribution—percentage of men, boys and child infections, and tables and figures of time with the important parasites found in them, etc.

The book has been brought up to date, and is excellent and reliable in every way.
W. F. R. H.

Report on Chinese Diseases. Chapter No. 15. Being the Fourth Annual Report of the British Committee on Chinese Diseases (Shanghai), appointed by the Royal College of Physicians. Edited by C. W. Stoney, M.D., F.R.C.P., and published by H. K. Lewis and Co. Price 10s. 6d.

This is the last of three volumes to be issued by the Committee on Chinese Diseases (Shanghai), and is better than the two last ones, and is published, more easily in the British Journal of the Sanitary Society of the Empire Health Council.

The volume is for readers across a large field as it, starts by the following chapter headings: "On the Voluntary Hospital before the Problem of Altruism in Medicine"; "Radioactive Substances and the Treatment of Malignancies"; "The Present State of the X-ray Problem in regard to Acute Rheumatism"; "Gold Therapy in Rheumatoid Arthritis". The Physiological Action of some "Vitamins" and Physical Treatment used in Rheumatic Diseases. These chapters are all written by a recognized authority in the individual subjects.

Perhaps the chapter on the "Present State of the X-ray Problem in regard to Acute Rheumatism" by B. L. Schlegel, M.D. is one of the most interesting contributions in this volume, at a time when the treatment of acute rheumatism seems to be waiting in any waiting establishment. Many of the older theories about this form of Rheumatism are not standing the test of time, and among the newer theories underlying serology and experimentalism in the X-ray theory which is discussed in the chapter referred to. The discovery of chemical factors in the high speed radiolysis of proteins that have come of some chemists has encouraged the hope that a cure may be given, so to the cause of this disease but at the moment experimentalism has not yet advanced to the point of proof. But, says a volume as the one under review at least believes that a very practical result is being worked upon the rheumatic factor, as a whole, and sooner or later will give results well in forthcoming from the work of the British National Committee on Chronic Rheumatic Diseases.

This book is well printed and contains several interesting diagrams and illustrations in the 140 pages. W. D. E.

ORIGINAL OF PAINFUL DISEASES.—PAINLESS. By J. B. GUYER, M.D., CHIEF, W.P.H. DEPT. CHICAGO, ILL. PROF. RICE, and Henry HODGINS, Professor of Public Health, University of Chicago. Lecturer in Public Health for the Lectures and Depts. of the Tropics School in Scotland. First Edition 1930. By 320 illustrations, 14 tables, 15 K and 15 L. Longmans, Twenty Place, Edinburgh. Price 15s net.

The G.P. "is well should be our first line of defence against ill health for it is the only line for the opportunity to get the biggest bang out of our money as regards to the environmental conditions of his patients. Yet how seldom do people wait to do this, unless actually ill, though as Professor Guyer says, "Ignorance is the art of sickness in its preventive aspect as less they receive medicine, and therefore the proper conduct of medical practice. But prevention alone is insufficient—an actual constructive policy of health is also necessary." "Get your health matters" is to say that if the chapter of preventive medicine, will have that book must be in demand about here in the U.S.

The help which the G.P. "and his practice can get from the book, whether it is the author says "quite substantial", and the last on page 7 shows how generous it may be. Though not primarily intended for G.P.H. candidates, the book covers a wide range of public health subjects, including a serial chapter on personal hygiene, but also most book attention for their community, physics, microbiology, and most of them sanitary law. The last named subject of medicine is only so far as it refers to the health of patients and the public, rather, and the difference between English and British procedures are noted.

Including the chapter on Industrial Hygiene, nearly a third of the book deals with actual services the community with food, the environmental sources, education, and occupational health. It would also with sections on the game and its role prevention.

In the opening chapter the idea of good hygiene by the service is suggested, even hope, as the author says, "it may still profit by these examples." In the section on non-preventive diseases, the Davis Subcommittee Trans-Parasitic Diseases

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Date	Name	Address	City	State	Zip
10/10/54	John Doe	123 Main St	New York	NY	10001
10/11/54	Jane Smith	456 Elm St	Los Angeles	CA	90001
10/12/54	Bob Johnson	789 Oak St	Chicago	IL	60601
10/13/54	Alice Brown	321 Pine St	Houston	TX	77001
10/14/54	Frank White	654 Maple St	Phoenix	AZ	85001
10/15/54	Grace Green	987 Cedar St	San Francisco	CA	94101
10/16/54	Henry Black	210 Birch St	Dallas	TX	75201
10/17/54	Irene Gray	543 Spruce St	Portland	OR	97201
10/18/54	Jack King	876 Willow St	San Diego	CA	92101

Agglutination	type and source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522
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1. *Explain the relationship between the two variables in the following sentence. Use the words "positive," "negative," and "no relationship" in your answer.*

of $\mathcal{H}_{\text{reg}}(\mathcal{H})$ is $\mathcal{H}_{\text{reg}}(\mathcal{H}) = \mathcal{H} \oplus \mathcal{H}^{\perp}$. For $\mathcal{H} = \mathcal{H}_{\text{reg}}(\mathcal{H})$, the decomposition is unambiguous, so

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[illegible]

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[illegible]

Full Name: _____

[illegible]

19. *How long will it take to get the results of the test?* The results of the test will be available within 24 hours.

Received 15 July 2003; accepted 15 July 2003; first published online 15 July 2003

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Modeling time: 0.1 sec.

¹⁷ Citizens will be kept out of the public domain by the state if it is necessary to ensure a more or less free market in the sense of Schumpeterian ideas. Keppel and al. (1997) have argued that this is not the case.

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challenge *n* a test or a controversy that involves a difficult task or a difficult situation

[illegible]

TREATMENT OF ARTERIA BY ORAL INTAKE

Ten symptomatic instances of pain to moderate attacks of asthma by means of oral solution of potassium iodide of a strength of 1:100 as described by Cramer and Stone in their original article (*Journal of Urology*, 1929, 2:419). These authors found that in many cases the physiological effect of potassium occurred with greater rapidity from oral solution of a 1:100 solution than when hypodermic injections of the 1:1000 solution was used. Side effects, such as perspiration and tachycardia, were rarely noted and the demand for and convenience of hypodermic injections could well be avoided. A preparation of the solution strongly for this treatment is now made available by Parke, Davis and Co., as "Vaporin." Solution of Iodine 1:100. The solution is sprayed into the mouth from an atomizer with the patient inhaling deeply. dosage is adjusted to individual needs and is easily fixed by experience. Any chronic delivery of a few twenty four-hour spray may be used, but for effectiveness and durability no better apparatus could be devised than the "Parke-Davis" Atomizer which has a stainless steel delivery tube and is of exceptionally robust construction throughout.

² Vaporin. Solution of Iodine 1:100 is made up in clear glass stoppered bottles of 4 oz.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE
AND PHARMACY AT WASHINGTON

We have been requested to insert the following notice with regard to the above:

The forthcoming International Congress (Fourth) of Military Medicine and Pharmacy will be held at Washington, May 1 to 12, 1930. Invitations to participate have been sent to every country by the President of the United States and already acceptance has been received from several countries. A full scientific and social program has been arranged and will shortly be needed in all cases as to which arrangements were made. A large organization is hoped for and every effort will be made by the Committee in charge to make the Congress an enjoyable one to those participating. General Charles E. Hays, Chief of the Bureau General of the United States Army, will be President of the Congress. Representatives are open to all officers of the Medical Services of the Army, Navy, Air and Colonial Services, National Guard, Territorial Forces and Public Health Service, whether Active or Reserve.

Colonel Harold W. Jones of the Army Medical Corps is Secretary-General. The Secretariat office is at the Army Medical Library, Washington, D.C.

MINUTELY PROGRAM

1st Session.—The Registration and Reception at the Medical Services at National City 12:30.

Registration.—Daily at 8:15-11:30 (Hours of Session).

2nd Session.—To make familiar with the program of the Congress.

Registration.—Daily at 8:15-11:30 (Hours of Session).

3rd Session.—General Session of the Congress, to be held at the National City 12:30.

Registration.—Daily at 8:15-11:30 (Hours of Session).

4th Session.—Registration and Reception at the National City 12:30.

Registration.—Daily at 8:15-11:30 (Hours of Session).

5th Session.—Registration and Reception at the National City 12:30.

Registration.—Daily at 8:15-11:30 (Hours of Session).

6th Session.—Registration and Reception at the National City 12:30.

Registration.—Daily at 8:15-11:30 (Hours of Session).

7th Session.—Registration and Reception at the National City 12:30.

Registration.—Daily at 8:15-11:30 (Hours of Session).

There is an additional program of entertainment and sightseeing.

NAVY MEDICAL COMPENSATION FUND.

At the Quarterly Meeting of the Fund, held on July 6, 1904 cases were considered and 215 voted to the applicants. The following is a summary of the cases selected:

Langdon, aged 37, of a Deputy Inspector General who died in 1885. Has no private means and relies on grants from Oligostolic Funds. Total £50. Total amount received from the Naval Medical Compensation Fund at various periods £110.

Rees aged 49 of an Inspector General who died in 1894. This woman an old age pension of 16s. a week. Total £20. Total amount received from the Naval Medical Compensation Fund at various periods £112.

Up-to-date defence *against infection*

'Dettol' is now widely used in hospitals and in private practice for surgical and obstetrical purposes, and its efficiency has been well established in articles by eminent authorities in medical journals.

'Dettol' can be used as easily effective disinfectant and is stable in the presence of blood, pus, faeces and other organic matter. When used at a strength of 30, as for skin, 'Dettol' provides an

antiseptic barrier for two hours against bacterial infections. 'Dettol' has an agreeable odour and is an efficient deodorant. It does not stain either the skin or fabrics.

'DETTOL' THE MODERN ANTISEPTIC

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